





Thr Arg His Glu Thr Tyr Arg Ser Thr Leu Lys Thr Leu Pro Gly Thr  
 20 25 30  
 Arg Leu Ala Leu Leu Ala Ser Ser Glu Pro Pro Gly Asp Cys Leu Thr  
 35 40 45  
 Thr Ala Gly Asp Lys Leu Gln Pro Ser Pro Pro Pro Leu Ser Pro Pro  
 50 55 60  
 Pro Arg Ala Pro Pro Leu Ser Pro Gly Pro Gly Gly Cys Phe Glu Gly  
 65 70 75 80  
 Gly Ala Gly Asn Cys Ser Ser Arg Gly Gly Arg Ala Ser Asp His Pro  
 85 90 95  
 Gly Gly Gly Arg Glu Phe Phe Phe Asp Arg His Pro Gly Val Phe Ala  
 100 105 110  
 Tyr Val Leu Asn Tyr Tyr Arg Thr Gly Lys Leu His Cys Pro Ala Asp  
 115 120 125  
 Val Cys Gly Pro Leu Phe Glu Glu Glu Leu Ala Phe Trp Gly Ile Asp  
 130 135 140  
 Glu Thr Asp Val Glu Pro Cys Cys Trp Met Thr Tyr Arg Gln His Arg  
 145 150 155 160  
 Asp Ala Glu Glu Ala Leu Asp Ile Phe Glu Thr Pro Asp Leu Ile Gly  
 165 170 175  
 Gly Asp Pro Gly Asp Asp Glu Asp Leu Ala Ala Lys Arg Leu Gly Ile  
 180 185 190  
 Glu Asp Ala Ala Gly Leu Gly Gly Pro Asp Gly Lys Ser Gly Arg Trp  
 195 200 205  
 Arg Arg Leu Gln Pro Arg Met Trp Ala Leu Phe Glu Asp Pro Tyr Ser  
 210 215 220  
 Ser Arg Ala Ala Arg Phe Ile Ala Phe Ala Ser Leu Phe Phe Ile Leu  
 225 230 235 240  
 Val Ser Ile Thr Thr Phe Cys Leu Glu Thr His Glu Ala Phe Asn Ile  
 245 250 255  
 Val Lys Asn Lys Thr Glu Pro Val Ile Asn Gly Thr Ser Val Val Leu  
 260 265 270  
 Gln Tyr Glu Ile Glu Thr Asp Pro Ala Leu Thr Tyr Val Glu Gly Val  
 275 280 285  
 Cys Val Val Trp Phe Thr Phe Glu Phe Leu Val Arg Ile Val Phe Ser  
 290 295 300  
 Pro Asn Lys Leu Glu Phe Ile Lys Asn Leu Leu Asn Ile Ile Asp Phe  
 305 310 315 320

Val Ala Ile Leu Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser  
325 330 335

Ser Lys Ala Ala Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe  
340 345 350

Val Arg Ile Leu Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu  
355 360 365

Arg Val Leu Gly His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu  
370 375 380

Leu Ile Ile Phe Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile  
385 390 395 400

Tyr Tyr Ala Glu Arg Val Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser  
405 410 415

Glu His Thr Gln Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val  
420 425 430

Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp  
435 440 445

Ser Gly Met Leu Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr  
450 455 460

Ile Ala Met Pro Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr  
465 470 475 480

Ser Leu Ala Met Ala Lys Gln Lys Leu Pro Arg Lys Arg Lys Lys His  
485 490 495

Ile Pro Pro Ala Pro Gln Ala Ser Ser Pro Thr Phe Cys Lys Thr Glu  
500 505 510

Leu Asn Met Ala Cys Asn Ser Thr Gln Ser Asp Thr Cys Leu Gly Lys  
515 520 525

Asp Asn Arg Leu Leu Glu His Asn Arg Ser Val Leu Ser Gly Asp Asp  
530 535 540

Ser Thr Gly Ser Glu Pro Pro Leu Ser Pro Pro Glu Arg Leu Pro Ile  
545 550 555 560

Arg Arg Ser Ser Thr Arg Asp Lys Asn Arg Arg Gly Glu Thr Cys Phe  
565 570 575

Leu Leu Thr Thr Gly Asp Tyr Thr Cys Ala Ser Asp Gly Gly Ile Arg  
580 585 590

Lys Gly Tyr Glu Lys Ser Arg Ser Leu Asn Asn Ile Ala Gly Leu Ala  
595 600 605

Gly Asn Ala Leu Arg Leu Ser Pro Val Thr Ser Pro Tyr Asn Ser Pro  
610 615 620



Val Cys Lys Ser Ser Asp Trp Phe Ile His Thr Cys Met Ala Ala Lys  
100 105 110

Ser Leu Thr Ile Val Val Val Ala Lys Val Cys Phe Met Tyr Ala Ser  
115 120 125

Asp Pro Ala Lys Gln Val Ser Ile His Asn Tyr Thr Ile Trp Ser Val  
130 135 140

Leu Val Ala Ile Trp Thr Val Ala Ser Leu Leu Pro Leu Pro Glu Trp  
145 150 155 160

Phe Phe Ser Thr Ile Arg His His Glu Gly Val Glu Met Cys Leu Val  
165 170 175

Asp Val Pro Ala Val Ala Glu Glu Phe Met Ser Met Phe Gly Lys Leu  
180 185 190

Tyr Pro Leu Leu Ala Phe Gly Leu Pro Leu Phe Phe Ala Ser Phe Tyr  
195 200 205

Phe Trp Arg Ala Tyr Asp Gln Cys Lys Lys Arg Gly Thr Lys Thr Gln  
210 215 220

Asn Leu Arg Asn Gln Ile Arg Ser Lys Gln Val Thr Val Met Leu Leu  
225 230 235 240

Ser Ile Ala Ile Ile Ser Ala Leu Leu Trp Leu Pro Glu Trp Val Ala  
245 250 255

Trp Leu Trp Val Trp His Leu Lys Ala Ala Gly Pro Ala Pro Pro Gln  
260 265 270

Gly Phe Ile Ala Leu Ser Gln Val Leu Met Phe Ser Ile Ser Ser Ala  
275 280 285

Asn Pro Leu Ile Phe Leu Val Met Ser Glu Glu Phe Arg Glu Gly Leu  
290 295 300

Lys Gly Val Trp Lys Trp Met Ile Thr Lys Lys Pro Pro Thr Val Ser  
305 310 315 320

Glu Ser Gln Glu Thr Pro Ala Gly Asn Ser Glu Gly Leu Pro Asp Lys  
325 330 335

Val Pro Ser Pro Glu Ser Pro Ala Ser Ile Pro Glu Lys Glu Lys Pro  
340 345 350

Ser Ser Pro Ser Ser Gly Lys Gly Lys Thr Glu Lys Ala Glu Ile Pro  
355 360 365

Ile Leu Pro Asp Val Glu Gln Phe Trp His Glu Arg Asp Thr Val Pro  
370 375 380

Ser Val Gln Asp Asn Asp Pro Ile Pro Leu Gly Thr  
385 390 395







$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) \delta(x-a) dx = f(a)$

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<210> 8
<211> 348
<212> PRT
<213> Homo sapiens
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| <400> 8 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met     | Glu | Ser | Thr | Cys | Val | Ser | Ala | Ser | Leu | Pro | Arg | Ser | Tyr | Arg | Lys |
| 1       |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr     | Asp | Thr | Val | Arg | Leu | Thr | Ser | Val | Val | Thr | Pro | Arg | Pro | Phe | Gly |
|         |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser     | Gln | Thr | Arg | Gly | Ile | Ser | Ser | Leu | Pro | Arg | Ser | Tyr | Thr | Met | Asp |
|         |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp     | Ala | Trp | Lys | Tyr | Asn | Gly | Asp | Ile | Glu | Asp | Ile | Lys | Arg | Thr | Pro |
|         | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asn     | Asn | Val | Val | Ser | Thr | Pro | Ala | Pro | Ser | Pro | Asp | Ala | Ser | Gln | Leu |
| 65      |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala     | Ser | Ser | Leu | Ser | Ser | Gln | Lys | Glu | Val | Ala | Ala | Thr | Glu | Glu | Asp |
|         |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val     | Thr | Arg | Leu | Pro | Ser | Pro | Thr | Ser | Pro | Phe | Ser | Ser | Leu | Ser | Gln |
|         |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp     | Gln | Ala | Ala | Thr | Ser | Lys | Ala | Thr | Leu | Ser | Ser | Thr | Ser | Gly | Leu |
|         |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |



ttggctctca gacaagggga atctcatcac tccccagatc ttacacgatg gatgatgctt 480  
 ggaagtataa tggagatggt gaagacatta agagaactcc aaacaatgtg gtcagcacc 540  
 ctgcaccaag cccggacgca agccaactgg cttcaagctt atctagccag aaagaggtag 600  
 cagcaacaga agaagatgtg acaaggctgc cctctcttac atcccccttc tcatctcttt 660  
 cccaagacca ggctgccact tctaaagcca cattgtcttc cacatctggt cttgatttaa 720  
 tgtctgaatc tggagaaggg gaaatctccc cacaaagaga agtctcaaga tcccaggatc 780  
 agttcagtga tatgagaatc agcataaacc agacgcctgg gaagagtctt gactttgggt 840  
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 cagaattttc tcagctacaa gtagatgatg aaattattgc tattaacaac accaagtttt 960  
 catataacga ttcaaaagag tgggaggaag ccatggctaa ggctcaagaa actggacacc 1020  
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 <212> PRT  
 <213> Homo sapiens

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 Pro Pro Thr Met Thr Val Ser Glu Ala Ser Tyr Gln Ser Glu Arg Val  
 35 40 45  
 Glu Glu Lys Gly Ala Thr Tyr Pro Ser Glu Ile Pro Lys Glu Asp Ser  
 50 55 60  
 Thr Thr Phe Ala Lys Arg Glu Asp Arg Val Thr Thr Glu Ile Gln Leu  
 65 70 75 80  
 Pro Ser Gln Ser Pro Val Glu Glu Gln Ser Pro Ala Ser Leu Ser Ser  
 85 90 95  
 Leu Arg Ser Arg Ser Thr Gln Met Glu Ser Thr Arg Val Ser Ala Ser  
 100 105 110  
 Leu Pro Arg Ser Tyr Arg Lys Thr Asp Thr Val Arg Leu Thr Ser Val  
 115 120 125  
 Val Thr Pro Arg Pro Phe Gly Ser Gln Thr Arg Gly Ile Ser Ser Leu  
 130 135 140  
 Pro Arg Ser Tyr Thr Met Asp Asp Ala Trp Lys Tyr Asn Gly Asp Val  
 145 150 155 160  
 Glu Asp Ile Lys Arg Thr Pro Asn Asn Val Val Ser Thr Pro Ala Pro  
 165 170 175

Ser Pro Asp Ala Ser Gln Leu Ala Ser Ser Leu Ser Ser Gln Lys Glu  
 180 185 190  
 Val Ala Ala Thr Glu Glu Asp Val Thr Arg Leu Pro Ser Pro Thr Ser  
 195 200 205  
 Pro Phe Ser Ser Leu Ser Gln Asp Gln Ala Ala Thr Ser Lys Ala Thr  
 210 215 220  
 Leu Ser Ser Thr Ser Gly Leu Asp Leu Met Ser Glu Ser Gly Glu Gly  
 225 230 235 240  
 Glu Ile Ser Pro Gln Arg Glu Val Ser Arg Ser Gln Asp Gln Phe Ser  
 245 250 255  
 Asp Met Arg Ile Ser Ile Asn Gln Thr Pro Gly Lys Ser Leu Asp Phe  
 260 265 270  
 Gly Phe Thr Ile Lys Trp Asp Ile Pro Gly Ile Phe Val Ala Ser Val  
 275 280 285  
 Glu Ala Gly Ser Pro Ala Glu Phe Ser Gln Leu Gln Val Asp Asp Glu  
 290 295 300  
 Ile Ile Ala Ile Asn Asn Thr Lys Phe Ser Tyr Asn Asp Ser Lys Glu  
 305 310 315 320  
 Trp Glu Glu Ala Met Ala Lys Ala Gln Glu Thr Gly His Leu Val Met  
 325 330 335  
 Asp Val Arg Arg Tyr Gly Lys Ala Asp Trp Gly Lys Asp Gln Pro Ser  
 340 345 350  
 Leu Pro Phe Ile Arg His Lys Thr Leu Asn Leu Thr Ser Met Ala Thr  
 355 360 365  
 Lys Ile Ile Gly Ser Pro Glu Thr Lys Trp Ile Asp Ala Thr Ser Gly  
 370 375 380  
 Ile Tyr Asn Ser Glu Lys Ser Ser Asn Leu Ser Val Thr Thr Asp Phe  
 385 390 395 400  
 Ser Glu Ser Leu Arg Ser Ser Asn Ile Glu Ser Lys Glu Ile Asn Gly  
 405 410 415  
 Ile His Asp Glu Ser Asn Ala Phe Asp Ser Lys Ala Ser Glu Ser Ile  
 420 425 430  
 Ser Leu Lys Asn Leu Lys Arg Arg Ser Gln Phe Phe Glu Gln Gly Lys  
 435 440 445  
 Pro Gln Ser  
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<210> 11

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

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<210> 12
<211> 536
<212> PRT
<213> Homo sapiens
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Ile Gly Leu Cys Arg Tyr Gly Gly Arg Ile Asp Cys Cys Trp Gly Trp  
35 40 45  
Ala Arg Gln Ser Trp Gly Gln Cys Gln Pro Val Cys Gln Pro Arg Cys  
50 55 60

**SECRET**



|        |          |       |           |        |            |         |           |          |           |           |            |            |      |
|--------|----------|-------|-----------|--------|------------|---------|-----------|----------|-----------|-----------|------------|------------|------|
| tca    | ttct     | tctgc | aaca      | agagaa | aga        | attatct | tcg       | agcttc   | atc       | agaagct   | ctgtt      | ctttt      | 1080 |
| caag   | aggaaa   | tggt  | taaaga    | gaaga  | atctg      | tttg    | agggaag   | aatt     | aaagca    | aac       | actggat    | 1140       |      |
| gagct  | tgata    | aatt  | acagca    | aaagg  | aggaa      | caag    | ctgaaa    | ggct     | gggtcaa   | gca       | attggaa    | 1200       |      |
| gagga  | agcaa    | aatc  | tagagc    | tga    | agaatta    | aaact   | cctag     | aag      | aaaagct   | gaa       | aggggaag   | 1260       |      |
| gaggct | gaac     | tgg   | agaaaaag  | tagt   | gctgct     | cat     | accagg    | cc       | acctgtct  | ttt       | gcaggaa    | 1320       |      |
| aagt   | atgaca   | gtat  | gggtgca   | ag     | ccttgaa    | gat     | gttactg   | ct       | caatttga  | aag       | ctataaa    | 1380       |      |
| gcgt   | taacag   | ccag  | tggagat   | aga    | agatctt    | aag     | ctggaga   | act      | catcatt   | ac        | aggaaaaa   | 1440       |      |
| gcggc  | caagg    | ctggg | aaaaa     | tgc    | agaggat    | ggt     | cagcatc   | ag       | atttttggc | a         | actgagagc  | 1500       |      |
| tcaa   | atcaag   | aat   | atgtaag   | gat    | gcttcta    | gat     | ctgcaga   | cca      | agtcagc   | act       | aaaggaa    | 1560       |      |
| acaga  | aaatta   | aaga  | aatcac    | agt    | ttctttt    | ctt     | caaaaaa   | ta       | actgattt  | gc        | agaaccaa   | 1620       |      |
| ctca   | agcaac   | agg   | aggaaga   | ctt    | tagaaaa    | cag     | ctggaag   | at       | gaagaagg  | a         | agaaaagct  | 1680       |      |
| gaaaa  | agaaa    | ata   | caacagc   | aga    | at         | taact   | gaaga     | aat      | ta        | aca       | agtgggc    | 1740       |      |
| gaaga  | actat    | ata   | ataaaaac  | aaa    | acctttt    | cag     | ctacaac   | tag      | atgcttt   | tga       | agtagaaa   | 1800       |      |
| aaac   | aggcat   | tgt   | tgaatga   | ac     | atggtgca   | gct     | caggaa    | ac       | gtaaaata  | a         | ataagagat  | 1860       |      |
| tcat   | atgcta   | aatt  | atttggg   | tcat   | cagaat     | tt      | gaacaaa   | aa       | atcaagca  | tg        | ttgtgaag   | 1920       |      |
| ttgaa  | agatg    | aaa   | atagcca   | act    | caaactg    | ga      | agtatcaa  | a        | actccgctg | tc        | agcttgct   | 1980       |      |
| aaaa   | aaaaaac  | aa    | agt       | gagac  | aaa        | acttcaa | gagga     | attga    | ata       | aa        | agttct     | 2040       |      |
| cact   | tttgatc  | ctt   | caaaggc   | ttt    | tcatcat    | gaa     | agtaaa    | g        | aaa       | atttttgc  | cct        | gaagacc    | 2100 |
| ccatt  | aaaaag   | aag   | gcaatac   | aa     | actgttac   | c       | gagctccta | t        | ggag      | tg        | tca        | agaatcatgg | 2160 |
| aag    | taaacat  | ct    | gagaaaac  | t      | gttgaagat  | t       | atttctatc | g        | tctt      | gtt       | gtt        | tattgatgtt | 2220 |
| gct    | gttatta  | tatt  | tgacat    | ggg    | taattttt   | ta      | attgttga  | tt       | ta        | attttt    | act        | gccaatc    | 2280 |
| ct     | taaatatg | t     | gaaaggaac | a      | tttttttacc | aa      | agtgtctt  | tt       | gacatttt  | a         | tttttttctt | 2340       |      |
| gcaa   | atacct   | c     | ctcccta   | aat    | gtcaccttt  | a       | tcacctcat | t        | ctga      | accct     | tt         | cgtggct    | 2400 |
| ttcc   | agctta   | ga    | atgc      | atct   | cat        | caactta | aa        | agtcagta | t         | catattatt | a          | tcctcctgt  | 2460 |
| tct    | gaaacct  | tag   | tttcaag   | agt    | ctaaac     | cc      | agattctt  | c        | agct      | ttgatc    | ct         | ggaggctt   | 2520 |
| ttct   | agctg    | ag    | cttcttta  | g      | ctaggtctaa | a       | acac      | cttgg    | ct        | gtttattg  | c          | ctctacttt  | 2580 |
| gatt   | cttgat   | a     | atgctcact | t      | ggctctacc  | t       | attatcctt | t        | ctact     | gtc       | cag        | ttcaaat    | 2640 |
| aaga   | aaataag  | g     | acaagccta | a      | cttcatagt  | a       | acctctcta | t        | ttt       |           |            |            | 2684 |

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<210> 14
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<212> PRT
<213> Homo sapiens
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| <400> 14 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Ser | Phe | Pro | Lys | Ala | Pro | Leu | Lys | Arg | Phe | Asn | Asp | Pro | Ser | Gly |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys      | Ala | Pro | Ser | Pro | Gly | Ala | Tyr | Asp | Val | Lys | Thr | Leu | Glu | Val | Leu |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys      | Gly | Pro | Val | Ser | Phe | Gln | Lys | Ser | Gln | Arg | Phe | Lys | Gln | Gln | Lys |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu      | Ser | Lys | Gln | Asn | Leu | Asn | Val | Asp | Lys | Asp | Thr | Thr | Leu | Pro | Ala |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser      | Ala | Arg | Lys | Val | Lys | Ser | Ser | Glu | Ser | Lys | Ile | Arg | Val | Leu | Leu |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gln      | Glu | Arg | Gly | Ala | Gln | Asp | Arg | Arg | Ile | Gln | Asp | Leu | Glu | Thr | Glu |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu      | Glu | Lys | Met | Glu | Ala | Arg | Leu | Asn | Ala | Ala | Leu | Arg | Glu | Lys | Thr |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |



17



Ala Ala His Thr Gln Ala Thr Leu Leu Gln Glu Lys Tyr Asp Ser  
420 425 430

Met Val Gln Ser Leu Glu Asp Val Thr Ala Gln Phe Glu Ser Tyr Lys  
435 440 445

Ala Leu Thr Ala Ser Glu Ile Glu Asp Leu Lys Leu Glu Asn Ser Ser  
450 455 460

Leu Gln Glu Lys Ala Ala Lys Ala Gly Lys Asn Ala Glu Asp Val Gln  
465 470 475 480

His Gln Ile Leu Ala Thr Glu Ser Ser Asn Gln Glu Tyr Val Arg Met  
485 490 495

Leu Leu Asp Leu Gln Thr Lys Ser Ala Leu Lys Glu Thr Glu Ile Lys  
500 505 510

Glu Ile Thr Val Ser Phe Leu Gln Lys Ile Thr Asp Leu Gln Asn Gln  
515 520 525

Leu Lys Gln Gln Glu Glu Asp Phe Arg Lys Gln Leu Glu Asp Glu Glu  
530 535 540

Gly Arg Lys Ala Glu Lys Glu Asn Thr Thr Ala Glu Leu Thr Glu Glu  
545 550 555 560

Ile Asn Lys Trp Arg Leu Leu Tyr Glu Glu Leu Tyr Asn Lys Thr Lys  
565 570 575

Pro Phe Gln Leu Gln Leu Asp Ala Phe Glu Val Glu Lys Gln Ala Leu  
580 585 590

Leu Asn Glu His Gly Ala Ala Gln Glu Gln Leu Asn Lys Ile Arg Asp  
595 600 605

Ser Tyr Ala Lys Leu Leu Gly His Gln Asn Leu Lys Gln Lys Ile Lys  
610 615 620

His Val Val Lys Leu Lys Asp Glu Asn Ser Gln Leu Lys Ser Glu Val  
625 630 635 640

Ser Lys Leu Arg Cys Gln Leu Ala Lys Lys Lys Gln Ser Glu Thr Lys  
645 650 655

Leu Gln Glu Glu Leu Asn Lys Val Leu Gly Ile Lys His Phe Asp Pro  
660 665 670

Ser Lys Ala Phe His His Glu Ser Lys Glu Asn Phe Ala Leu Lys Thr  
675 680 685

Pro Leu Lys Glu Gly Asn Thr Asn Cys Tyr Arg Ala Pro Met Glu Cys  
690 695 700

Gln Glu Ser Trp Lys  
705

1000

|             |             |             |             |            |            |      |
|-------------|-------------|-------------|-------------|------------|------------|------|
| gcagtcacct  | tcagttttctg | gagctggccg  | tcaacatgtc  | ctttcctaag | gcgccttga  | 60   |
| aacgattcaa  | tgacccttct  | ggttgtgcac  | catctccagg  | tgttatgat  | gttaaaactt | 120  |
| tagaagtatt  | gaaaggacca  | gtatcctttc  | agaaatcaca  | aagattttaa | caacaaaaag | 180  |
| aatctaaaaca | aaatcttaat  | gttgacaaaag | atactacctt  | gcctgcttca | gctagaaaag | 240  |
| ttaagtcttc  | ggaatcaaaag | atttgtgttc  | ttctacagga  | acgtggtgcc | caggacaggc | 300  |
| ggatccacgga | tcttgaaact  | gagttggaac  | agatggaagc  | aaggctaaat | gctgcactaa | 360  |
| gggaaaaaac  | atctctctct  | gcaaatataag | ctacactgga  | aaaacaactt | attgaattga | 420  |
| ccaggactaa  | tgaactacta  | aaatctaagg  | tttcaataga  | gaaagaaaag | attgatgaaa | 480  |
| aatctgaaac  | agaaaaactc  | ttggaataca  | tgaagaaat   | tagttgtgct | tcagatcaag | 540  |
| tggaaaaata  | caagctagat  | attgcccagt  | tagaagaaaa  | tttgaaagag | aagaatgatg | 600  |
| aaatttttaag | ccttaagcag  | tctcttgagg  | acaatattgt  | tatattatct | aaacaagtag | 660  |
| aagatctaaa  | tgtgaaatgt  | cagctgtctg  | aaacagaaaa  | agaagaccat | gtcaacagga | 720  |
| atagagaaca  | caacgaaat   | ctaaatgctg  | agatgcaaaa  | cttagaacag | aagtttatct | 780  |
| ttgaacaacg  | ggaacatgaa  | aagcttcaac  | aaaaagaatt  | acaaattgat | tactctctgc | 840  |
| aacaagagaa  | agaattatct  | tcgagtcttc  | atcagaagct  | ctgttctttt | caagaggaaa | 900  |
| tggttaaaga  | gaagaatctg  | tttgaggaag  | aattaaagca  | aacactggat | gagcttgata | 960  |
| aattacagca  | aaaggaggaa  | caagctgaaa  | ggctgggtcaa | gcaattggaa | gaggaagcaa | 1020 |
| aatctagagc  | tgaagaatta  | aaactcctag  | aagaaaagct  | gaaagggaa  | gaggctgaac | 1080 |
| tggagaaaaa  | tagtgctgct  | cataccagg   | ccacctgtct  | tttgcaggaa | aagtatgaca | 1140 |
| gtatggtgca  | aagccttgaa  | gatgttactg  | ctcaatttga  | acggtataaa | gcgttaacag | 1200 |
| ccagtgagat  | agaagatctt  | aagctggaga  | atctatcatt  | acaggtaaaa | gcggccaagg | 1260 |
| ctgggaaaaa  | tgcagaggat  | gttcagcatc  | agattttggc  | aactgagagc | tcaaatcaag | 1320 |
| aatatgtaag  | gatgcttcta  | gatctgcaga  | ccaagtcagc  | actaaaggaa | acagaaatta | 1380 |
| aagaaatcac  | agtttctttt  | cttcaaaaaa  | taactgattt  | gcagaaccaa | ctcaagcaac | 1440 |
| aggaggaaga  | ctttagaaaa  | cagctggaag  | atgaagaagg  | aagaaaagct | gaaaaagaaa | 1500 |
| atacacagc   | agaatttaact | gaagaaatta  | acaagtgggc  | tctcctctat | gaagaactat | 1560 |
| ataataaaac  | aaaacctttt  | cagctacaac  | tagatgcttt  | tgaagtagaa | aaacggcat  | 1620 |
| tgttgaatga  | acatggtgca  | gctcaggaac  | agctaaataa  | aataagagat | tcatatgcta | 1680 |
| aattattggg  | tcatcagaat  | ttgaaacaaa  | aaatcaagca  | tgttgtgaag | ttgaaagatg | 1740 |
| aaaatagcca  | actcaaatcg  | gaagtatcaa  | aactccgctg  | tcagcttgct | aaaaaaaaac | 1800 |
| aaagtgagac  | aaaacttcaa  | gaggaattga  | ataaagttct  | aggtatcaaa | cactttgatc | 1860 |
| cttcaaagtc  | ttttcatcat  | gaaagtaata  | aaaaattttg  | cctgaagacc | ccattaaaag | 1920 |
| aaggcaatgc  | aaactgtttc  | cgagctctca  | tggagtgtca  | agaatcatgg | aagtaaacat | 1980 |
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 Leu Glu Lys Met Glu Ala Arg Leu Asn Ala Ala Leu Arg Glu Lys Thr  
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 Ser Leu Ser Ala Asn Asn Ala Thr Leu Glu Lys Gln Leu Ile Glu Leu  
 115 120 125  
 Thr Arg Thr Asn Glu Leu Leu Lys Ser Lys Val Ser Ile Glu Lys Glu  
 130 135 140  
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 145 150 155 160  
 Glu Ile Ser Cys Ala Ser Asp Gln Val Glu Lys Tyr Lys Leu Asp Ile  
 165 170 175  
 Ala Gln Leu Glu Glu Asn Leu Lys Glu Lys Asn Asp Glu Ile Leu Ser  
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 Leu Lys Gln Ser Leu Glu Asp Asn Ile Val Ile Leu Ser Lys Gln Val  
 195 200 205  
 Glu Asp Leu Asn Val Lys Cys Gln Leu Leu Glu Thr Glu Lys Glu Asp  
 210 215 220  
 His Val Asn Arg Asn Arg Glu His Asn Glu Asn Leu Asn Ala Glu Met  
 225 230 235 240  
 Gln Asn Leu Glu Gln Lys Phe Ile Leu Glu Gln Arg Glu His Glu Lys  
 245 250 255  
 Leu Gln Gln Lys Glu Leu Gln Ile Asp Ser Leu Leu Gln Gln Glu Lys  
 260 265 270  
 Glu Leu Ser Ser Ser Leu His Gln Lys Leu Cys Ser Phe Gln Glu Glu  
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 Asp Glu Leu Asp Lys Leu Gln Gln Lys Glu Glu Gln Ala Glu Arg Leu  
 305 310 315 320  
 Val Lys Gln Leu Glu Glu Glu Ala Lys Ser Arg Ala Glu Glu Leu Lys  
 325 330 335  
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Ser Ala Ala His Thr Gln Ala Thr Leu Leu Leu Gln Glu Lys Tyr Asp  
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Ser Met Val Gln Ser Leu Glu Asp Val Thr Ala Gln Phe Glu Ser Tyr  
370 375 380

Lys Ala Leu Thr Ala Ser Glu Ile Glu Asp Leu Lys Leu Glu Asn Ser  
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Ser Leu Gln Glu Lys Ala Ala Lys Ala Gly Lys Asn Ala Glu Asp Val  
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Gln His Gln Ile Leu Ala Thr Glu Ser Ser Asn Gln Glu Tyr Val Arg  
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Met Leu Leu Asp Leu Gln Thr Lys Ser Ala Leu Lys Glu Thr Glu Ile  
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Lys Glu Ile Thr Val Ser Phe Leu Gln Lys Ile Thr Asp Leu Gln Asn  
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Gln Leu Lys Gln Gln Glu Asp Phe Arg Lys Gln Leu Glu Asp Glu  
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Glu Gly Arg Lys Ala Glu Lys Glu Asn Thr Thr Ala Glu Leu Thr Glu  
485 490 495

Glu Ile Asn Lys Trp Arg Leu Leu Tyr Glu Glu Leu Tyr Asn Lys Thr  
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Lys Pro Phe Gln Leu Gln Leu Asp Ala Phe Glu Val Glu Lys Gln Ala  
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Leu Leu Asn Glu His Gly Ala Ala Gln Glu Gln Leu Asn Lys Ile Arg  
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Asp Ser Tyr Ala Lys Leu Leu Gly His Gln Asn Leu Lys Gln Lys Ile  
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Lys His Val Val Lys Leu Lys Asp Glu Asn Ser Gln Leu Lys Ser Glu  
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Val Ser Lys Leu Arg Cys Gln Leu Ala Lys Lys Lys Gln Ser Glu Thr  
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Lys Leu Gln Glu Glu Leu Asn Lys Val Leu Gly Ile Lys His Phe Asp  
595 600 605

Pro Ser Lys Ala Phe His His Glu Ser Lys Glu Asn Phe Ala Leu Lys  
610 615 620

Thr Pro Leu Lys Glu Gly Asn Thr Asn Cys Tyr Arg Ala Pro Met Glu  
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Cys Gln Glu Ser Trp Lys  
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ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED  
DATE 08-21-2001 BY 60322 UCBAW

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22

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|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |
| Lys | Gly | Pro | Val | Ser | Phe | Gln | Lys | Ser | Gln | Arg | Phe | Lys | Gln | Gln | Lys |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Glu | Ser | Lys | Gln | Asn | Leu | Asn | Val | Asp | Lys | Asp | Thr | Thr | Leu | Pro | Ala |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Ser | Ala | Arg | Lys | Val | Lys | Ser | Ser | Glu | Ser | Lys | Ile | Arg | Val | Leu | Leu |  |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Gln | Glu | Arg | Gly | Ala | Gln | Asp | Arg | Arg | Ile | Gln | Asp | Leu | Glu | Thr | Glu |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Leu | Glu | Lys | Met | Glu | Ala | Arg | Leu | Asn | Ala | Ala | Leu | Arg | Glu | Lys | Thr |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ser | Leu | Ser | Ala | Asn | Asn | Ala | Thr | Leu | Glu | Lys | Gln | Leu | Ile | Glu | Leu |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Thr | Arg | Thr | Asn | Glu | Leu | Leu | Lys | Ser | Lys | Phe | Ser | Glu | Asn | Asp | Asn |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Gln | Lys | Asn | Leu | Arg | Ile | Leu | Ser | Leu | Glu | Leu | Met | Lys | Leu | Arg | Asn |  |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Lys | Arg | Glu | Thr | Lys | Met | Arg | Gly | Met | Met | Ala | Lys | Gln | Glu | Gly | Met |  |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Glu | Met | Lys | Leu | Gln | Val | Thr | Gln | Arg | Ser | Leu | Glu | Glu | Ser | Gln | Gly |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Lys | Ile | Ala | Gln | Leu | Glu | Gly | Lys | Leu | Val | Ser | Ile | Glu | Lys | Glu | Lys |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Ile | Asp | Glu | Lys | Ser | Glu | Thr | Glu | Lys | Leu | Leu | Glu | Tyr | Ile | Glu | Glu |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Ile | Ser | Cys | Ala | Ser | Asp | Gln | Val | Glu | Lys | Tyr | Lys | Leu | Asp | Ile | Ala |  |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Gln | Leu | Glu | Glu | Asn | Leu | Lys | Glu | Lys | Asn | Asp | Glu | Ile | Leu | Ser | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Lys | Gln | Ser | Leu | Glu | Glu | Asn | Ile | Val | Ile | Leu | Ser | Lys | Gln | Val | Glu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Asp | Leu | Asn | Val | Lys | Cys | Gln | Leu | Leu | Glu | Lys | Glu | Lys | Glu | Asp | His |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Val | Asn | Arg | Asn | Arg | Glu | His | Asn | Glu | Asn | Leu | Asn | Ala | Glu | Met | Gln |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Asn | Leu | Lys | Gln | Lys | Phe | Ile | Leu | Glu | Gln | Gln | Glu | Arg | Glu | Lys | Leu |  |
|     | 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Gln | Gln | Lys | Glu | Leu | Gln | Ile | Asp | Ser | Leu | Leu | Gln | Gln | Glu | Lys | Glu |  |





625                      630                      635                      640

Ser Lys Leu Arg Cys Gln Leu Ala Lys Lys Lys Gln Ser Glu Thr Lys  
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Leu Gln Glu Glu Leu Asn Lys Val Leu Gly Ile Lys His Phe Asp Pro  
                                  660                      665                      670

Ser Lys Ala Phe His His Glu Ser Lys Glu Asn Phe Ala Leu Lys Thr  
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Pro Leu Lys Glu Gly Asn Thr Asn Cys Tyr Arg Ala Pro Met Glu Cys  
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Gln Glu Ser Trp Lys  
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 <213> Homo sapiens

<400> 19

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| tggactctct  | tgttacagca | aacaccaa   | tttgctttga  | tctttttcaa  | gagataggca  | 120  |
| aagatgatcg  | tcataaaaac | atatttttct | ctcccctgag  | cctctcagct  | gcccttggtta | 180  |
| tggtacgctt  | gggtgctaga | agtgcacagt | cacatcagat  | tgatgaggta  | cgttccttaa  | 240  |
| acaatgagag  | cggactggtc | agctgctact | ttgggcagct  | tctctccaaa  | ttagacagga  | 300  |
| tcaagactga  | ttacacactg | agtattgcca | acaggcttta  | tggagagtcc  | agcctgggag  | 360  |
| acaagagcga  | aactctgtct | caaaaaaaaa | aaaaaaaaat  | tatctacaca  | aatgcttttg  | 420  |
| atacaattca  | tactcaggat | attctctggg | atcttttttt  | aggtaaaatc  | aaggaactct  | 480  |
| tcagcaagga  | cgttattaat | gctgagactg | tgctgggtact | ggtgaatgct  | gtttacttca  | 540  |
| aggccaaatg  | ggaaacatac | tttgaccatg | aaaacacggg  | ggatgcacct  | ttctgtctaa  | 600  |
| atcagaatga  | aaacaagagt | gtgaagatga | tgacgcaaaa  | aggcctctac  | agaattggct  | 660  |
| tcatagagga  | ggtgaaggca | cagatcctgg | aaatgaggta  | caccaagggg  | aagctcagca  | 720  |
| tgttcgtgct  | gctgccatct | cactctaaag | ataacctgaa  | gggtatcacc  | tatgaaaaaa  | 780  |
| tggtggcctg  | gagcagctca | gaaaacatgt | cagaagaatc  | ggtggtcctg  | tccttcccc   | 840  |
| ggttcaccct  | ggaagacagc | tatgatctca | attccatttt  | acaagacatg  | ggcattacgg  | 900  |
| atatctttga  | tgaacagagg | gctgatctta | tggaatctc   | tccaagtccc  | aatttgctact | 960  |
| atgtcaaaaat | tatccacaaa | acctttgtgg | agggtgatga  | aaacggtagc  | caggcagctg  | 1020 |
| cagccactgg  | ggctgtttgc | tcggaaagg  | cactacgatc  | ttgggtggag  | tttaatgcca  | 1080 |
| accacccttt  | tctctttttc | attagacaca | acaaaacca   | aaccattctc  | ttttatggca  | 1140 |
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| Met | Asp | Ser | Leu | Val | Thr | Ala | Asn | Thr | Lys | Phe | Cys | Phe | Asp | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Gln Glu Ile Gly Lys Asp Asp Arg His Lys Asn Ile Phe Phe Ser Pro  
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Leu Ser Leu Ser Ala Ala Leu Gly Met Val Arg Leu Gly Ala Arg Ser  
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 Asp Ser Ala His Gln Ile Asp Glu Val Arg Ser Leu Asn Asn Glu Ser  
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 Gly Leu Val Ser Cys Tyr Phe Gly Gln Leu Leu Ser Lys Leu Asp Arg  
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 Ile Lys Thr Asp Tyr Thr Leu Ser Ile Ala Asn Arg Leu Tyr Gly Glu  
 85 90 95  
 Ser Ser Leu Gly Asp Lys Ser Glu Thr Leu Ser Gln Lys Lys Lys Lys  
 100 105 110  
 Lys Ile Ile Tyr Thr Asn Ala Phe Asp Thr Ile His Thr Gln Asp Ile  
 115 120 125  
 Leu Trp Asp Leu Phe Leu Gly Lys Ile Lys Glu Leu Phe Ser Lys Asp  
 130 135 140  
 Ala Ile Asn Ala Glu Thr Val Leu Val Leu Val Asn Ala Val Tyr Phe  
 145 150 155 160  
 Lys Ala Lys Trp Glu Thr Tyr Phe Asp His Glu Asn Thr Val Asp Ala  
 165 170 175  
 Pro Phe Cys Leu Asn Gln Asn Glu Asn Lys Ser Val Lys Met Met Thr  
 180 185 190  
 Gln Lys Gly Leu Tyr Arg Ile Gly Phe Ile Glu Glu Val Lys Ala Gln  
 195 200 205  
 Ile Leu Glu Met Arg Tyr Thr Lys Gly Lys Leu Ser Met Phe Val Leu  
 210 215 220  
 Leu Pro Ser His Ser Lys Asp Asn Leu Lys Gly Ile Thr Tyr Glu Lys  
 225 230 235 240  
 Met Val Ala Trp Ser Ser Ser Glu Asn Met Ser Glu Glu Ser Val Val  
 245 250 255  
 Leu Ser Phe Pro Arg Phe Thr Leu Glu Asp Ser Tyr Asp Leu Asn Ser  
 260 265 270  
 Ile Leu Gln Asp Met Gly Ile Thr Asp Ile Phe Asp Glu Thr Arg Ala  
 275 280 285  
 Asp Leu Thr Gly Ile Ser Pro Ser Pro Asn Leu Tyr Leu Ser Lys Ile  
 290 295 300  
 Ile His Lys Thr Phe Val Glu Val Asp Glu Asn Gly Thr Gln Ala Ala  
 305 310 315 320  
 Ala Ala Thr Gly Ala Val Val Ser Glu Arg Ser Leu Arg Ser Trp Val  
 325 330 335

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Pro Pro Val Val Ala Gly Asp Ala Val Thr Leu Lys Cys Asn Phe Lys  
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Thr Asp Gly Arg Met Arg Glu Ile Val Trp Tyr Arg Val Thr Asp Gly  
50 55 60

Gly Thr Ile Lys Gln Lys Ile Phe Thr Phe Asp Ala Met Phe Ser Thr  
65 70 75 80

Asn Tyr Ser His Met Glu Asn Tyr Arg Lys Arg Glu Asp Leu Val Tyr  
85 90 95

Gln Ser Thr Val Arg Leu Pro Glu Val Arg Ile Ser Asp Asn Gly Pro  
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Tyr Glu Cys His Val Gly Ile Tyr Asp Arg Ala Thr Arg Glu Lys Val  
115 120 125

Val Leu Ala Ser Gly Asn Ile Phe Leu Asn Val Met Ala Pro Pro Thr  
130 135 140

Ser Ile Glu Val Val Ala Ala Asp Thr Pro Ala Pro Phe Ser Arg Tyr  
145 150 155 160

Gln Ala Gln Asn Phe Thr Leu Val Cys Ile Val Ser Gly Gly Lys Pro  
165 170 175

Ala Pro Met Val Tyr Phe Lys Arg Asp Gly Glu Pro Ile Asp Ala Val  
180 185 190

Pro Leu Ser Glu Pro Pro Ala Ala Ser Ser Gly Pro Leu Gln Asp Ser  
195 200 205

Arg Pro Phe Arg Ser Leu Leu Leu Asp Leu Asp Asp Thr Lys Met Gln  
210 215 220

Lys Ser Leu Ser Leu Leu Asp Ala Glu Asn Arg Gly Gly Arg Pro Tyr  
225 230 235 240

Thr Glu Arg Pro Ser Arg Gly Leu Thr Pro Asp Pro Asn Ile Leu Leu  
245 250 255

Gln Pro Thr Thr Glu Asn Ile Pro Glu Thr Val Val Ser Arg Glu Phe  
260 265 270

Pro Arg Trp Val His Ser Ala Glu Pro Thr Tyr Phe Leu Arg His Ser  
275 280 285

Arg Thr Pro Ser Ser Asp Gly Thr Val Glu Val Arg Ala Leu Leu Thr  
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Trp Thr Leu Asn Pro Gln Ile Asp Asn Glu Ala Leu Phe Ser Cys Glu  
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Val Lys His Pro Ala Leu Ser Met Pro Met Arg Ala Glu Val Thr Pro  
325 330 335

Val Ala Pro Lys Gly Pro Lys Ile Val Met Thr Pro Ser Arg Ala Arg  
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Lys Thr Asp Gly Arg Met Arg Glu Ile Val Trp Tyr Arg Val Thr Asp  
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Gly Gly Thr Ile Lys Gln Lys Ile Phe Thr Phe Asp Ala Met Phe Ser  
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Thr Asn Tyr Ser His Met Glu Asn Tyr Arg Lys Arg Glu Asp Leu Val  
85 90 95  
Tyr Gln Ser Thr Val Arg Leu Pro Glu Val Arg Ile Ser Asp Asn Gly  
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Pro Tyr Glu Cys His Val Gly Ile Tyr Asp Arg Ala Thr Arg Glu Lys  
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145 150 155 160  
Tyr Gln Ala Gln Asn Phe Thr Leu Val Cys Ile Val Ser Gly Gly Lys  
165 170 175  
Pro Ala Pro Met Val Tyr Phe Lys Arg Asp Gly Glu Pro Ile Asp Ala  
180 185 190  
Val Pro Leu Ser Glu Pro Pro Ala Ala Ser Ser Gly Pro Leu Gln Asp  
195 200 205  
Ser Arg Pro Phe Arg Ser Leu Leu Leu Asp Leu Asp Asp Thr Lys Met  
210 215 220  
Gln Lys Ser Leu Ser Leu Leu Asp Ala Glu Asn Arg Gly Gly Arg Pro  
225 230 235 240  
Tyr Thr Glu Arg Pro Ser Arg Gly Leu Thr Pro Asp Pro Asn Ile Leu  
245 250 255

Leu Gln Pro Thr Thr Glu Asn Ile Pro Glu Thr Val Val Ser Arg Glu  
                   260                                  265                                  270  
 Phe Pro Arg Trp Val His Ser Ala Glu Pro Thr Tyr Phe Leu Arg His  
                   275                                  280                                  285  
 Ser Arg Thr Pro Ser Ser Asp Gly Thr Val Glu Val Arg Ala Leu Leu  
                   290                                  295                                  300  
 Thr Trp Thr Leu Asn Pro Gln Ile Asp Asn Glu Ala Leu Phe Ser Cys  
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 Glu Val Lys His Pro Ala Leu Ser Met Pro Met Arg Ala Glu Val Thr  
                                   325                                  330                                  335  
 Pro Val Ala Pro Lys Gly Pro Lys Ile Val Met Thr Pro Ser Arg Ala  
                                   340                                  345                                  350  
 Arg Val Gly Asp Thr Val Arg Ile Leu Val His Gly Phe Gln Asn Glu  
                                   355                                  360                                  365  
 Val Phe Pro Glu Pro Met Phe Thr Trp Thr Arg Val Gly Ser Arg Leu  
                   370                                  375                                  380  
 Leu Asp Gly Ser Ala Glu Phe Asp Gly Lys Glu Leu Val Leu Glu Arg  
 385                                  390                                  395                                  400  
 Val Pro Ala Glu Leu Asn Gly Ser Met Tyr Arg Cys Thr Ala Gln Asn  
                                   405                                  410                                  415  
 Pro Leu Gly Ser Thr Asp Thr His Thr Arg Leu Ile Val Phe Glu Asn  
                   420                                  425                                  430  
 Pro Asn Ile Pro Arg Gly Thr Glu Asp Ser Asn Gly Ser Ile Gly Pro  
                   435                                  440                                  445  
 Thr Gly Ala Arg Leu Thr Leu Val Leu Ala Leu Thr Val Ile Leu Glu  
                   450                                  455                                  460  
 Leu Thr  
 465

<210> 25  
 <211> 1407  
 <212> DNA  
 <213> Homo sapiens

<400> 25  
 atgcgaaccg ccccgagcct ccgcccgtgc gtctgcctgc tgctcgccgc gatcctggac 60  
 ctggcgcgcg gctacctgac agtcaacatt gagcctctcc cccctgtggt ggctggagac 120  
 gccgtgactt tgaagtgtaa cttcaagaca gatgggcgca tgcgggagat cgtgtggtac 180  
 cgggtgacgg atggtggcac catcaagcaa aagatcttca ccttcgacgc catgttctcc 240  
 accaactact cacacatgga gaactaccgc aagcgagagg acctggtgta ccagtccact 300  
 gtgaggctgc ccgaggtccg gatctcagac aatgggtccct atgagtgccca tgtgggcatc 360  
 tacgaccgcg ccaccaggga gaaggtggtc ctggcatcag gcaacatctt cctcaacgtc 420







<210> 27  
 <211> 682  
 <212> DNA  
 <213> Homo sapiens

<400> 27  
 accatgcgaa ccgccccgag cctccgcgcg tgcgcgccac cgcctcggcc agtggccgga 60  
 ggcaggagcg cgtctgagtt tccccgctgg gtccacagcg ccgagccccc ctacttcttg 120  
 cgccacagcc gcaccccag cagtgcgggc actgtggaag tacgtgccct gctcacctgg 180  
 accctcaacc cacagatcga caacgaggcc ctcttcagct gcgagggtcaa gcacccagct 240  
 ctgtcgatgc ccatgcgggc agagggtcacg ctggttgccc ccaaaggacc caaaattgtg 300  
 atgatgcccga gcagagcccg ggtagggggac acagtgcgga ttctggtcca tgggtttcag 360  
 aacgaagtct tccccgagcc catgttcacg tggacgcggg ttgggagccg cctcctggac 420  
 ggcagcgctg agttcgacgg gaaggagctg gtgctggagc gggttcccg cagactcaat 480  
 ggctccatgt atcgctgcac cgcccagaac ccactgggct ccactgacac gcacaccccg 540  
 ctcacgtgtg ttgaaaaccc aaatatccca agaggaacgg aggactctaa tgggtccatt 600  
 gccccactg gtgcccggct caccttggtg ctgcgcctga cagtgcattt ggagctgacg 660  
 tgatgacagt gattctggag ct 682

<210> 28  
 <211> 219  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
 Met Arg Thr Ala Pro Ser Leu Arg Arg Cys Pro Pro Pro Pro Arg Pro  
 1 5 10 15  
 Val Ala Gly Gly Arg Ser Ala Ser Glu Phe Pro Arg Trp Val His Ser  
 20 25 30  
 Ala Glu Pro Thr Tyr Phe Leu Arg His Ser Arg Thr Pro Ser Ser Asp  
 35 40 45  
 Gly Thr Val Glu Val Arg Ala Leu Leu Thr Trp Thr Leu Asn Pro Gln  
 50 55 60  
 Ile Asp Asn Glu Ala Leu Phe Ser Cys Glu Val Lys His Pro Ala Leu  
 65 70 75 80  
 Ser Met Pro Met Arg Ala Glu Val Thr Leu Val Ala Pro Lys Gly Pro  
 85 90 95  
 Lys Ile Val Met Met Pro Ser Arg Ala Arg Val Gly Asp Thr Val Arg  
 100 105 110  
 Ile Leu Val His Gly Phe Gln Asn Glu Val Phe Pro Glu Pro Met Phe  
 115 120 125  
 Thr Trp Thr Arg Val Gly Ser Arg Leu Leu Asp Gly Ser Ala Glu Phe  
 130 135 140  
 Asp Gly Lys Glu Leu Val Leu Glu Arg Val Pro Ala Glu Leu Asn Gly  
 145 150 155 160

Ser Met Tyr Arg Cys Thr Ala Gln Asn Pro Leu Gly Ser Thr Asp Thr  
165 170 175

His Thr Arg Leu Ile Val Phe Glu Asn Pro Asn Ile Pro Arg Gly Thr  
180 185 190

Glu Asp Ser Asn Gly Ser Ile Ala Pro Thr Gly Ala Arg Leu Thr Leu  
195 200 205

Val Leu Ala Leu Thr Val Ile Leu Glu Leu Thr  
210 215

<210> 29  
<211> 992  
<212> DNA  
<213> Homo sapiens

<400> 29  
accatgcgaa ccgccccgag cctccgcccgc tgcgtctgcc tgctgctcgc cgcgatacctg 60  
gacctggcgc gcggctacct gacagtcaac attgagcctc tccccctgt ggtggctgga 120  
gacgccgtga ctttgaagtg taacttcaag acagatgggc gcatgcggga gatcgtgtgg 180  
taccgggtga cggatgggtg caccatcaag caaaagatct tcacctcga cgccatgttc 240  
tccaccaact actcacacat ggagaactac cgcaagcgag aggacctggg gtaccagtcc 300  
actgtgaggc tgcccagagt ccgcatctca gacaatggtc cctatgagt ccattgtggc 360  
atctacgacc gcgccaccag ggagaagggt gtcctggcat caggcaacat cttcctcaac 420  
gtcatgggtg ccccaaaagg acccaaaatt gtgatgacgc ccagcagagc ccgggtaggg 480  
gacacagtga ggattctggg ccatgggttt cagaacgaag tcttcccga gcccatgttc 540  
acgtggacgc ggggtgggag ccgcctcctg gacggcagcg ctgagttcga cgggaaggag 600  
ctgggtgctgg agcgggttcc cgccgagctc aatgggtcca tgtatcgctg caccgccccg 660  
aaccactgg gctccaccga cagcacacc cggtcctcgc tgtttgaaaa cccaaatatt 720  
ccaagaggaa cggaggactc taatgggttc attggcccca ctggtgccc gctcaccttg 780  
gtgctcgccc tgacagtgat tctggagctg acgtgaagac agtgattctg gactgacgt 840  
gacagtgatt ctggagctga cgtgatgaca gtgattctgg agctgacgtg atgacagtga 900  
ttctggagct gacgtgatga cagtgtattt ggagctgacg tgatgacagt gattctggag 960  
ctgacgtgat gacagtgatt ctggagctga cg 992

<210> 30  
<211> 270  
<212> PRT  
<213> Homo sapiens

<400> 30  
Met Arg Thr Ala Pro Ser Leu Arg Arg Cys Val Cys Leu Leu Leu Ala  
1 5 10 15

Ala Ile Leu Asp Leu Ala Arg Gly Tyr Leu Thr Val Asn Ile Glu Pro  
20 25 30

Leu Pro Pro Val Val Ala Gly Asp Ala Val Thr Leu Lys Cys Asn Phe  
35 40 45

Lys Thr Asp Gly Arg Met Arg Glu Ile Val Trp Tyr Arg Val Thr Asp  
50 55 60

Gly Gly Thr Ile Lys Gln Lys Ile Phe Thr Phe Asp Ala Met Phe Ser  
65 70 75 80

Thr Asn Tyr Ser His Met Glu Asn Tyr Arg Lys Arg Glu Asp Leu Val  
85 90 95

Tyr Gln Ser Thr Val Arg Leu Pro Glu Val Arg Ile Ser Asp Asn Gly  
100 105 110

Pro Tyr Glu Cys His Val Gly Ile Tyr Asp Arg Ala Thr Arg Glu Lys  
115 120 125

Val Val Leu Ala Ser Gly Asn Ile Phe Leu Asn Val Met Val Ala Pro  
130 135 140

Lys Gly Pro Lys Ile Val Met Thr Pro Ser Arg Ala Arg Val Gly Asp  
145 150 155 160

Thr Val Arg Ile Leu Val His Gly Phe Gln Asn Glu Val Phe Pro Glu  
165 170 175

Pro Met Phe Thr Trp Thr Arg Val Gly Ser Arg Leu Leu Asp Gly Ser  
180 185 190

Ala Glu Phe Asp Gly Lys Glu Leu Val Leu Glu Arg Val Pro Ala Glu  
195 200 205

Leu Asn Gly Ser Met Tyr Arg Cys Thr Ala Pro Asn Pro Leu Gly Ser  
210 215 220

Thr Asp Thr His Thr Arg Leu Ile Val Phe Glu Asn Pro Asn Ile Pro  
225 230 235 240

Arg Gly Thr Glu Asp Ser Asn Gly Ser Ile Gly Pro Thr Gly Ala Arg  
245 250 255

Leu Thr Leu Val Leu Ala Leu Thr Val Ile Leu Glu Leu Thr  
260 265 270

<210> 31  
<211> 1341  
<212> DNA  
<213> Homo sapiens

<400> 31  
ggatcctacc tgacagtcaa cattgagcct ctccccctg tgggtggctgg agacgccgtg 60  
actttgaagt gtaacttcaa gacagatggg cgcagtcggg agatcgtgtg gtaccgggtg 120  
acggatgggtg gcaccatcaa gcaaaagatc ttcaccttcg acgccatgtt ctccaccaac 180  
tactcacaca tggagaacta ccgcaagcga gaggacctgg tgtaccagtc cactgtgagg 240  
ctgcccagagg tccggatctc agacaatggt ccctatgagt gccatgtggg catctacgac 300  
cgcgccacca gggagaaggt ggtcctggca tcaggcaaca tcttcctcaa cgtcatggct 360  
cctcccacct ccattgaagt ggtggctgct gacacaccag ccccttcag ccgctaccaa 420  
gccagaact tcacgctggg ctgcatcgtg tctggaggaa aaccagcacc catggtttat 480  
ttcaaacgag atggggaacc aatcgacgca gtgcccctat cagagccacc agctgcgagc 540  
tccggcccc tacaggacag caggcccttc cgcagccttc tgcaccgtga cctggatgac 600  
accaagatgc agaagtcact gtcctcctg gacgccgaga accgggggtg gcgaccctac 660

acggagcgcc cctcccgtgg cctgacccca gatcccaaca tcctcctcca gcccaaccaca 720  
gagaacatac cagagacggg cgtgagccgt gagtttcccc gctgggtcca cagcgccgag 780  
cccacctact tcctgcgcca cagecgcacc cggagcagtg acggcactgt ggaagtacgt 840  
gccctgctca cctggaccct caaccacag atcgacaacg aggccctctt cagctgcgag 900  
gtcaagcacc cagctctgtc gatgcccatg caggcagagg tcacgctggt tgcccccaaa 960  
ggacccaaaaa ttgtgatgac gccacgcaga gcccgggtag gggacacagt gaggattctg 1020  
gtccatgggt ttcagaacga agtcttcccc gagcccatgt tcacgtggac gcgggttggg 1080  
agccgcctcc tggacggcag cgtgagttc gacgggaagg agctgggtgct ggagcgggtt 1140  
cccgcgagc tcaatggctc catgtatcgc tgcaccgccc agaaccact gggctccacc 1200  
gacacgcaca cccggctcat cgtgtttgaa aacccaaata tccaagagg aacggaggac 1260  
tctaattggt ccattggccc cactggtgcc cggctcacct tgggtgctgc cctgacagtg 1320  
attctggagc tgacgctcga g 1341

<210> 32  
<211> 447  
<212> PRT  
<213> Homo sapiens

<400> 32  
Gly Ser Tyr Leu Thr Val Asn Ile Glu Pro Leu Pro Pro Val Val Ala  
1 5 10 15  
Gly Asp Ala Val Thr Leu Lys Cys Asn Phe Lys Thr Asp Gly Arg Met  
20 25 30  
Arg Glu Ile Val Trp Tyr Arg Val Thr Asp Gly Gly Thr Ile Lys Gln  
35 40 45  
Lys Ile Phe Thr Phe Asp Ala Met Phe Ser Thr Asn Tyr Ser His Met  
50 55 60  
Glu Asn Tyr Arg Lys Arg Glu Asp Leu Val Tyr Gln Ser Thr Val Arg  
65 70 75 80  
Leu Pro Glu Val Arg Ile Ser Asp Asn Gly Pro Tyr Glu Cys His Val  
85 90 95  
Gly Ile Tyr Asp Arg Ala Thr Arg Glu Lys Val Val Leu Ala Ser Gly  
100 105 110  
Asn Ile Phe Leu Asn Val Met Ala Pro Pro Thr Ser Ile Glu Val Val  
115 120 125  
Ala Ala Asp Thr Pro Ala Pro Phe Ser Arg Tyr Gln Ala Gln Asn Phe  
130 135 140  
Thr Leu Val Cys Ile Val Ser Gly Gly Lys Pro Ala Pro Met Val Tyr  
145 150 155 160  
Phe Lys Arg Asp Gly Glu Pro Ile Asp Ala Val Pro Leu Ser Glu Pro  
165 170 175  
Pro Ala Ala Ser Ser Gly Pro Leu Gln Asp Ser Arg Pro Phe Arg Ser  
180 185 190  
Leu Leu His Arg Asp Leu Asp Asp Thr Lys Met Gln Lys Ser Leu Ser





210 215 220  
Asn Gly Ser Ile Gly Pro Thr Gly Leu Glu  
225 230

<210> 35  
<211> 1446  
<212> DNA  
<213> Homo sapiens

<400> 35  
gcggaacaaa ctggaagct gaccgaattt gtgtctaacc tggcgtggga tttegcagtc 60  
aaagaaggggt tccgggtttt caaagagatg cccttcacaa atccgttaac aaggtcctac 120  
cacacgtggg ccaggcccca gtcccagtg tgccccacag gcagcaggag ttatagctcc 180  
gttcacagaag ctccccagc tcatacctca aggggaggtc tggttatctc tccagagagc 240  
ctctctccac ctgtcagaga gctgtatcac cggctgaagc acttcatgga gcaacgtgtg 300  
taccctgcag agccagagct gcagagtcac caggcctcag cagccaggtg gagccccctc 360  
ccactgatcg aagacctcaa ggagaaagcc aaagctgaag gactttggaa ctttttcccta 420  
cccttagagg ctgatcccg gaaaaaatac ggagcaggac tgaccaatgt ggaatatgca 480  
catctgtgtg agctcatggg cagtcctctg tatgcccccg aggtatgtaa ctgctctgcg 540  
cctgacacgg gcaacatgga gctgctgggt aggtatggca ccgaagcgca gaaggctcgc 600  
tggctgattc ctctgctgga ggggaaagcc cgctcctgtt ttgctatgac cgagccccag 660  
gttgccctctt cagatgccac caacattgag gcttccatca gagaggagga cagcttctat 720  
gtcataaaacg gtcacaaatg gtggatcaca ggcattcctg atcctcgttg ccaactctgt 780  
gtgttttatgg gaaaaacaga cccacatgca ccaagacacc ggcagcagtc tgtgctcttg 840  
gttcccatgg ataccccagg gataaaaatc atccggcctc tgacggtgta tggactggaa 900  
gatgcaccag gtggccatgg tgaagtccga tttgagcacg tgcgtgtgcc caaagagaac 960  
atggctcctgg gccctggccg aggcctttgag atcgcccagg gcagactggg ccccgccagg 1020  
atccatcact gcatgaggct gatcgggttc tcagagaggg ccctggcact catgaaggcc 1080  
cgcggtgaagt cccgcttggc ttttgggaag cccctggtgg agcagggcac agtgctggcg 1140  
gacatcgcg agtcgcgct ggagattgag caggcacggc tgctggtgct gagagctgcc 1200  
cacctcatgg acctggcagg aaacaaggct gcagccttg atatagccat gattaaaatg 1260  
gtcgccccgt ccatggcctc ccgagtgatt gatcgtgcga ttcaggcctt tggagcagca 1320  
ggcctgagca gcgactaccc actggctcag ttcttcacct gggccccagc cctgcgcttt 1380  
gccgacggcc ctgacgaggt gcaccgggcc acggtggcca agctagagct gaagcaccgc 1440  
atttag 1446

<210> 36  
<211> 452  
<212> PRT  
<213> Homo sapiens

<400> 36  
Met Pro Phe Thr Asn Pro Leu Thr Arg Ser Tyr His Thr Trp Ala Arg  
1 5 10 15  
Pro Gln Ser Gln Trp Cys Pro Thr Gly Ser Arg Ser Tyr Ser Ser Val  
20 25 30  
Pro Glu Ala Ser Pro Ala His Thr Ser Arg Gly Gly Leu Val Ile Ser  
35 40 45  
Pro Glu Ser Leu Ser Pro Pro Val Arg Glu Leu Tyr His Arg Leu Lys  
50 55 60



His Phe Met Glu Gln Arg Val Tyr Pro Ala Glu Pro Glu Leu Gln Ser  
 65 70 75 80  
 His Gln Ala Ser Ala Ala Arg Trp Ser Pro Ser Pro Leu Ile Glu Asp  
 85 90 95  
 Leu Lys Glu Lys Ala Lys Ala Glu Gly Leu Trp Asn Leu Phe Leu Pro  
 100 105 110  
 Leu Glu Ala Asp Pro Glu Lys Lys Tyr Gly Ala Gly Leu Thr Asn Val  
 115 120 125  
 Glu Tyr Ala His Leu Cys Glu Leu Met Gly Thr Ser Leu Tyr Ala Pro  
 130 135 140  
 Glu Val Cys Asn Cys Ser Ala Pro Asp Thr Gly Asn Met Glu Leu Leu  
 145 150 155 160  
 Val Arg Tyr Gly Thr Glu Ala Gln Lys Ala Arg Trp Leu Ile Pro Leu  
 165 170 175  
 Leu Glu Gly Lys Ala Arg Ser Cys Phe Ala Met Thr Glu Pro Gln Val  
 180 185 190  
 Ala Ser Ser Asp Ala Thr Asn Ile Glu Ala Ser Ile Arg Glu Glu Asp  
 195 200 205  
 Ser Phe Tyr Val Ile Asn Gly His Lys Trp Trp Ile Thr Gly Ile Leu  
 210 215 220  
 Asp Pro Arg Cys Gln Leu Cys Val Phe Met Gly Lys Thr Asp Pro His  
 225 230 235 240  
 Ala Pro Arg His Arg Gln Gln Ser Val Leu Leu Val Pro Met Asp Thr  
 245 250 255  
 Pro Gly Ile Lys Ile Ile Arg Pro Leu Thr Val Tyr Gly Leu Glu Asp  
 260 265 270  
 Ala Pro Gly Gly His Gly Glu Val Arg Phe Glu His Val Arg Val Pro  
 275 280 285  
 Lys Glu Asn Met Val Leu Gly Pro Gly Arg Gly Phe Glu Ile Ala Gln  
 290 295 300  
 Gly Arg Leu Gly Pro Gly Arg Ile His His Cys Met Arg Leu Ile Gly  
 305 310 315 320  
 Phe Ser Glu Arg Ala Leu Ala Leu Met Lys Ala Arg Val Lys Ser Arg  
 325 330 335  
 Leu Ala Phe Gly Lys Pro Leu Val Glu Gln Gly Thr Val Leu Ala Asp  
 340 345 350  
 Ile Ala Gln Ser Arg Val Glu Ile Glu Gln Ala Arg Leu Leu Val Leu  
 355 360 365

Arg Ala Ala His Leu Met Asp Leu Ala Gly Asn Lys Ala Ala Ala Leu  
370 375 380

Asp Ile Ala Met Ile Lys Met Val Ala Pro Ser Met Ala Ser Arg Val  
385 390 395 400

Ile Asp Arg Ala Ile Gln Ala Phe Gly Ala Ala Gly Leu Ser Ser Asp  
405 410 415

Tyr Pro Leu Ala Gln Phe Phe Thr Trp Ala Arg Ala Leu Arg Phe Ala  
420 425 430

Asp Gly Pro Asp Glu Val His Arg Ala Thr Val Ala Lys Leu Glu Leu  
435 440 445

Lys His Arg Ile  
450

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<210> 37
<211> 1363
<212> DNA
<213> Homo sapiens
```

| <400>       | 37          |             |            |             |             |      |  |
|-------------|-------------|-------------|------------|-------------|-------------|------|--|
| agagatgccc  | ttcacaaatc  | cgttaacaag  | gtcctaccac | acgtgggcca  | ggccccagtc  | 60   |  |
| ccagtggtgc  | cccacaggca  | gcaggagtta  | tagctccggt | ccagaagctt  | ccccagctca  | 120  |  |
| tacctcaagg  | ggagggtctgg | tatatctctcc | agagagcctc | tctccacctg  | tccagagagct | 180  |  |
| gtatcaccgg  | ctgaagcact  | tcattggagca | acgtgtgtac | cctgcagagc  | cagagctgca  | 240  |  |
| gagtcaccag  | gcctcagcag  | cagggtggag  | ccccctccca | ctgactcgaag | acctcaagga  | 300  |  |
| gaaagccaaa  | gctgaaggac  | tttggaaacct | tttcttacct | ttagagggtg  | atcccagaaa  | 360  |  |
| aaaatacggg  | gcaggactga  | ccaatgtgga  | atatgcacat | ctgtgtgagc  | tcatggggcac | 420  |  |
| gtccctgtat  | gcccccgagg  | tatgtaactg  | ctctgcgcct | gacacggggc  | acatggagct  | 480  |  |
| gctgggtgagg | tatggcaccg  | aagcgcagaa  | ggctcgtctg | ctgattcttc  | tgtgggaggg  | 540  |  |
| gaaagccggc  | tctgtttttg  | ctatgaccga  | gccccagggt | gcctcttcag  | atgccaccaa  | 600  |  |
| cattgaggct  | tccatcagag  | aggaggacag  | cttctatgtc | ataaacggtc  | acaaatggtg  | 660  |  |
| gatcacaggc  | atcctggatc  | ctcgttgcca  | actctgtgtg | tttatgggaa  | aaacagaccc  | 720  |  |
| acatgcacca  | agacaccggc  | agcagctctgt | gctcttggtt | cccatggata  | ccccagggat  | 780  |  |
| aaaaatcatc  | cggcctctga  | cgggtgtatg  | actggaagat | gcaccagggt  | gcccattggtg | 840  |  |
| agtccgattt  | gagcacgtgc  | gtgtgcccc   | agagaacatg | gtcctggggc  | ctggccgagg  | 900  |  |
| ctttgagatc  | gcccagggca  | gactggggcc  | cggcaggatc | catcactgca  | tgaggctgat  | 960  |  |
| cgggtttctc  | gagagggccc  | tggcactcat  | gaaggccgc  | gtgaagtccc  | gcttggtttt  | 1020 |  |
| tgggaagccc  | ctgggtggagc | agggcacagt  | gctggcggac | atcgcgcagt  | cgcgcgtgga  | 1080 |  |
| gattgagcag  | gcacggctgc  | tgggtgctgag | agctgcccac | ctcatggacc  | tggcaggaaa  | 1140 |  |
| caaggctgca  | gccttgagata | tagccatgat  | taaaatgggt | gccccgtcca  | tggcctcccg  | 1200 |  |
| agtgattgat  | cgtgcgattc  | ccgccttttg  | agcagcaggc | ctgagcagcg  | actaccact   | 1260 |  |
| ggctcagttc  | ttcacctggg  | agggcagcct  | gcgctttggc | gcaggccctg  | acgaggtgca  | 1320 |  |
| cqqgaccacg  | qtgqccaagc  | taqagctqaa  | gcaccgcatt | taq         |             | 1363 |  |

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<210> 38
<211> 452
<212> PRT
<213> Homo sapiens
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<400> 38  
Met Pro Phe Thr Asn Pro Leu Thr Arg Ser Tyr His Thr Trp Ala Arg

43



[illegible]

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<210> 39
<211> 1380
<212> DNA
<213> Homo sapiens
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|             |            |             |             |             |            |      |  |
|-------------|------------|-------------|-------------|-------------|------------|------|--|
| <400>       | 39         |             |             |             |            |      |  |
| gcggaacaaa  | ctggaaagct | gaccgaattt  | gtgtctaacc  | tggcgtggga  | tttcgcagtc | 60   |  |
| aaagaagggt  | tccgggtttt | caaagagatg  | cccttcacaa  | atccgttaac  | aaggctctac | 120  |  |
| cacacgtggg  | ccaggcccca | gtcccagtgg  | tgccccacag  | gcagcaggag  | ttatagctcc | 180  |  |
| gttccagaag  | cttccccagc | tcataacctca | aggggagggtc | tggttatctc  | tccagagagc | 240  |  |
| ctctctccac  | ctgtcacaga | gctgatcaca  | cgggtgaagc  | actttcatgga | gcaacgtgtg | 300  |  |
| taccctgcag  | agccagagct | gcagagtcac  | caggcctcag  | cagccagggtg | gagccctccc | 360  |  |
| ccactgatcg  | aagacctcaa | ggagaaaagcc | aaagctgaag  | gactttggaa  | ccttttccta | 420  |  |
| cccttagagg  | ctgatcccg  | gaaaaaatatc | ggagcaggac  | tgaccaatgt  | ggaatatgca | 480  |  |
| catctgtgtg  | agctcatggg | cacgtccctg  | tatgcccccg  | aggtatgtaa  | ctgctctgcg | 540  |  |
| cctgacacgg  | gcaacatgga | gctgctgggtg | aggtatggca  | ccgaagcgca  | gaaggctcgc | 600  |  |
| tggctgattc  | ctctgctgga | ggggaaaagcc | cgctcctggt  | ttgctatgac  | cgagccccag | 660  |  |
| gttgctcttc  | catagtccac | caacatttag  | gctttccatca | gagaggagga  | cagcttctat | 720  |  |
| gtcataaacg  | gtcacaaatg | gtggatcaca  | ggcatcctgg  | atcctcggtg  | ccaactctgt | 780  |  |
| gtgttttatgg | gaaaaacaga | cccacatgca  | ccaagacacc  | ggcagcagtc  | tgtgctcgtg | 840  |  |
| gttcccatgg  | ataccccagg | gataaaaatc  | atccggcctc  | tgacggtgta  | tggactggaa | 900  |  |
| gatgcaccag  | gtggccatgg | tgaagtccga  | tttgagcacg  | tgcgtgtgcc  | caaagagaac | 960  |  |
| atggtcctgg  | gccctggccg | aggtctttgag | atcgcgccagg | gcagactggg  | ccccggcagg | 1020 |  |
| atccatcact  | gcatgaggct | gatcgggttg  | tcagagaggg  | ccatggcact  | catgaaggcc | 1080 |  |
| cgcgtgtgag  | cattggatat | agccattgatt | aaaatggctg  | cccgctccat  | ggcttcccga | 1140 |  |
| gtgattgatac | gtgcgattca | ggcctttgga  | gcagcaggct  | tcagcagcga  | atacccatgt | 1200 |  |
| gtcatttttt  | tcacatgggc | ccgagccctg  | cgctttgcgg  | acggtcctga  | cgaggtgcac | 1260 |  |





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gaacacagtc ctgtgcaaaa ttcacagtgt ggatctgcag gctgtgggac ttgaagacta 1200
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aaaaaaaaaa 3490

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 <212> PRT  
 <213> Homo sapiens

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           20                    25                    30  
 Glu Gly Gly Glu Asn Gly Pro Trp Met Arg Phe Met Arg Ala Glu Ile  
           35                    40                    45

Thr Ala Glu Gly Phe Leu Arg Glu Phe Gly Arg Leu Cys Ser Glu Met  
50 55 60

Leu Lys Thr Ser Val Pro Val Asp Ser Phe Phe Ser Leu Leu Thr Ser  
65 70 75 80

Glu Arg Val Ala Lys Gln Phe Pro Val Met Thr Glu Ala Ile Thr Gln  
85 90 95

Ile Arg Ala Lys Gly Leu Gln Thr Ala Val Leu Ser Asn Asn Phe Tyr  
100 105 110

Leu Pro Asn Gln Lys Ser Phe Leu Pro Leu Asp Arg Lys Gln Phe Asp  
115 120 125

Val Ile Val Glu Ser Cys Met Glu Gly Ile Cys Lys Pro Asp Pro Arg  
130 135 140

Ile Tyr Lys Leu Cys Leu Glu Gln Leu Gly Leu Gln Pro Ser Glu Ser  
145 150 155 160

Ile Phe Leu Asp Asp Leu Gly Thr Asn Leu Lys Glu Ala Ala Arg Leu  
165 170 175

Gly Ile His Thr Ile Lys Val Asn Asp Pro Glu Thr Ala Val Lys Glu  
180 185 190

Leu Glu Ala Leu Leu Gly Phe Thr Leu Arg Val Gly Val Pro Asn Thr  
195 200 205

Arg Pro Val Lys Lys Thr Met Glu Ile Pro Lys Asp Ser Leu Gln Lys  
210 215 220

Tyr Leu Lys Asp Leu Leu Gly Ile Gln Thr Thr Gly Pro Leu Glu Leu  
225 230 235 240

Leu Gln Phe Asp His Gly Gln Ser Asn Pro Thr Tyr Tyr Ile Arg Leu  
245 250 255

Ala Asn Arg Asp Leu Val Leu Arg Lys Lys Pro Pro Gly Thr Leu Leu  
260 265 270

Pro Ser Ala His Ala Ile Glu Arg Glu Phe Arg Ile Met Lys Ala Leu  
275 280 285

Ala Asn Ala Gly Val Pro Val Pro Asn Val Leu Asp Leu Cys Glu Asp  
290 295 300

Ser Ser Val Ile Gly Thr Pro Phe Tyr Val Met Glu Tyr Cys Pro Gly  
305 310 315 320

Leu Ile Tyr Lys Asp Pro Ser Leu Pro Gly Leu Glu Pro Ser His Arg  
325 330 335

Arg Ala Ile Tyr Thr Ala Met Asn Thr Val Leu Cys Lys Ile His Ser  
340 345 350



Val Asp Leu Gln Ala Val Gly Leu Glu Asp Tyr Gly Lys Gln Gly Asp  
355 360 365

Tyr Ile Pro Arg Gln Val Arg Thr Trp Val Lys Gln Tyr Arg Ala Ser  
370 375 380

Glu Thr Ser Thr Ile Pro Ala Met Glu Arg Leu Ile Glu Trp Leu Pro  
385 390 395 400

Leu His Leu Pro Arg Gln Gln Arg Thr Thr Val Val His Gly Asp Phe  
405 410 415

Arg Leu Asp Asn Leu Val Phe His Pro Glu Glu Pro Glu Val Leu Ala  
420 425 430

Val Leu Asp Trp Glu Leu Ser Thr Leu Gly Asp Pro Leu Ala Asp Val  
435 440 445

Ala Tyr Ser Cys Leu Ala His Tyr Leu Pro Ser Ser Phe Pro Val Leu  
450 455 460

Arg Gly Ile Asn Asp Cys Asp Leu Thr Gln Leu Gly Ile Pro Ala Ala  
465 470 475 480

Glu Glu Tyr Phe Arg Met Tyr Cys Leu Gln Met Gly Leu Pro Pro Thr  
485 490 495

Glu Asn Trp Asn Phe Tyr Met Ala Phe Ser Phe Phe Arg Val Ala Ala  
500 505 510

Ile Leu Gln Gly Val Tyr Lys Arg Ser Leu Thr Gly Gln Ala Ser Ser  
515 520 525

Thr Tyr Ala Glu Gln Thr Gly Lys Leu Thr Glu Phe Val Ser Asn Leu  
530 535 540

Ala Trp Asp Phe Ala Val Lys Glu Gly Phe Arg Val Phe Lys Glu Met  
545 550 555 560

Pro Phe Thr Asn Pro Leu Thr Arg Ser Tyr His Thr Trp Ala Arg Pro  
565 570 575

Gln Ser Gln Trp Cys Pro Ile Gly Ser Arg Ser Tyr Ser Ser Val Pro  
580 585 590

Glu Ala Ser Pro Ala His Thr Ser Arg Gly Gly Leu Val Ile Ser Pro  
595 600 605

Glu Ser Leu Ser Pro Pro Val Arg Glu Leu Tyr His Arg Leu Lys His  
610 615 620

Phe Met Glu Gln Arg Val Tyr Pro Ala Glu Pro Glu Leu Gln Ser His  
625 630 635 640

Gln Ala Ser Ala Ala Arg Trp Ser Pro Ser Pro Leu Ile Glu Asp Leu  
645 650 655

Lys Glu Lys Ala Lys Ala Glu Gly Leu Trp Asn Leu Phe Leu Pro Leu  
 660 665 670  
 Glu Ala Asp Pro Glu Lys Lys Tyr Gly Ala Gly Leu Thr Asn Val Glu  
 675 680 685  
 Tyr Ala His Leu Cys Glu Leu Met Gly Thr Ser Leu Tyr Ala Pro Glu  
 690 695 700  
 Val Cys Asn Cys Ser Ala Pro Asp Thr Gly Asn Met Glu Leu Leu Val  
 705 710 715 720  
 Arg Tyr Gly Thr Glu Ala Gln Lys Ala Arg Trp Leu Ile Pro Leu Leu  
 725 730 735  
 Glu Gly Lys Ala Arg Ser Cys Phe Ala Met Thr Glu Pro Gln Val Ala  
 740 745 750  
 Ser Ser Asp Ala Thr Asn Ile Glu Ala Ser Ile Arg Glu Glu Asp Ser  
 755 760 765  
 Phe Tyr Val Ile Asn Gly His Lys Trp Trp Ile Thr Gly Ile Leu Asp  
 770 775 780  
 Pro Arg Cys Gln Leu Cys Val Phe Met Gly Lys Thr Asp Pro His Ala  
 785 790 795 800  
 Pro Arg His Arg Gln Gln Ser Val Leu Leu Val Pro Met Asp Thr Pro  
 805 810 815  
 Gly Ile Lys Ile Ile Arg Pro Leu Thr Val Tyr Gly Leu Glu Asp Ala  
 820 825 830  
 Pro Gly Gly His Gly Glu Val Arg Phe Glu His Val Arg Val Pro Lys  
 835 840 845  
 Glu Asn Met Val Leu Gly Pro Gly Arg Gly Phe Glu Ile Ala Gln Gly  
 850 855 860  
 Arg Leu Gly Pro Gly Arg Ile His His Cys Met Arg Leu Ile Gly Phe  
 865 870 875 880  
 Ser Glu Arg Ala Leu Ala Leu Met Lys Ala Arg Val Lys Ser Arg Leu  
 885 890 895  
 Ala Phe Gly Lys Pro Leu Val Glu Gln Gly Thr Val Leu Ala Asp Ile  
 900 905 910  
 Ala Gln Ser Arg Val Glu Ile Glu Gln Ala Arg Leu Leu Val Leu Arg  
 915 920 925  
 Ala Ala His Leu Met Asp Leu Ala Gly Asn Lys Ala Ala Ala Leu Asp  
 930 935 940  
 Ile Ala Met Ile Lys Met Val Ala Pro Ser Met Ala Ser Arg Val Ile  
 945 950 955 960



Glu Thr Asp Val Glu Pro Cys Cys Trp Met Thr Tyr Arg Gln His Arg  
145 150 155 160

Asp Ala Glu Glu Ala Leu Asp Ile Phe Glu Thr Pro Asp Leu Ile Gly  
165 170 175

Gly Asp Pro Gly Asp Asp Glu Asp Leu Ala Ala Lys Arg Leu Gly Ile  
180 185 190

Glu Asp Ala Ala Gly Leu Gly Gly Pro Asp Gly Lys Ser Gly Arg Trp  
195 200 205

Arg Arg Leu Gln Pro Arg Met Trp Ala Leu Phe Glu Asp Pro Tyr Ser  
210 215 220

Ser Arg Ala Ala Arg Phe Ile Ala Phe Ala Ser Leu Phe Phe Ile Leu  
225 230 235 240

Val Ser Ile Thr Thr Phe Cys Leu Glu Thr His Glu Ala Phe Asn Ile  
245 250 255

Val Lys Asn Lys Thr Glu Pro Val Ile Asn Gly Thr Ser Val Val Leu  
260 265 270

Gln Tyr Glu Ile Glu Thr Asp Pro Ala Leu Thr Tyr Val Glu Gly Val  
275 280 285

Cys Val Val Trp Phe Thr Phe Glu Phe Leu Val Arg Ile Val Phe Ser  
290 295 300

Pro Asn Lys Leu Glu Phe Ile Lys Asn Leu Leu Asn Ile Ile Asp Phe  
305 310 315 320

Val Ala Ile Leu Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser  
325 330 335

Ser Lys Ala Ala Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe  
340 345 350

Val Arg Ile Leu Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu  
355 360 365

Arg Val Leu Gly His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu  
370 375 380

Leu Ile Ile Phe Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile  
385 390 395 400

Tyr Tyr Ala Glu Arg Val Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser  
405 410 415

Glu His Thr Gln Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val  
420 425 430

Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp  
435 440 445



| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Gly | Asn | Cys | Ser | Ser | His | Gly | Gly | Asn | Gly | Ser | Asp | His | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Gly | Gly | Arg | Glu | Phe | Phe | Phe | Asp | Arg | His | Pro | Gly | Val | Phe | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr | Val | Leu | Asn | Tyr | Tyr | Arg | Thr | Gly | Lys | Leu | His | Cys | Pro | Ala | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Cys | Gly | Pro | Leu | Phe | Glu | Glu | Glu | Leu | Ala | Phe | Trp | Gly | Ile | Asp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Thr | Asp | Val | Glu | Pro | Cys | Cys | Trp | Met | Thr | Tyr | Arg | Gln | His | Arg |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Asp | Ala | Glu | Glu | Ala | Leu | Asp | Ile | Phe | Glu | Thr | Pro | Asp | Leu | Ile | Gly |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Gly | Asp | Pro | Gly | Asp | Asp | Glu | Asp | Leu | Gly | Gly | Lys | Arg | Leu | Gly | Ile |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Asp | Ala | Ala | Gly | Leu | Gly | Gly | Pro | Asp | Gly | Lys | Ser | Gly | Arg | Trp |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Arg | Lys | Leu | Gln | Pro | Arg | Met | Trp | Ala | Leu | Phe | Glu | Asp | Pro | Tyr | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Arg | Ala | Ala | Arg | Phe | Ile | Ala | Phe | Ala | Ser | Leu | Phe | Phe | Ile | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Ser | Ile | Thr | Thr | Phe | Cys | Leu | Glu | Thr | His | Glu | Ala | Phe | Asn | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Val | Lys | Asn | Lys | Thr | Glu | Pro | Val | Ile | Asn | Gly | Thr | Ser | Ala | Val | Leu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gln | Tyr | Glu | Ile | Glu | Thr | Asp | Pro | Ala | Leu | Thr | Tyr | Val | Glu | Gly | Val |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Cys | Val | Val | Trp | Phe | Thr | Phe | Glu | Phe | Leu | Val | Arg | Ile | Val | Phe | Ser |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Pro | Asn | Lys | Leu | Glu | Phe | Ile | Lys | Asn | Leu | Leu | Asn | Ile | Ile | Asp | Phe |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Val | Ala | Ile | Leu | Pro | Phe | Tyr | Leu | Glu | Val | Gly | Leu | Ser | Gly | Leu | Ser |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ser | Lys | Ala | Ala | Lys | Asp | Val | Leu | Gly | Phe | Leu | Arg | Val | Val | Arg | Phe |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Val | Arg | Ile | Leu | Arg | Ile | Phe | Lys | Leu | Thr | Arg | His | Phe | Val | Gly | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Val | Leu | Gly | His | Thr | Leu | Arg | Ala | Ser | Thr | Asn | Glu | Phe | Leu | Leu |

370                      375                      380  
 Leu Ile Ile Phe Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile  
 385                      390                      395                      400  
 Tyr Tyr Ala Glu Arg Val Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser  
                     405                      410                      415  
 Glu His Thr Gln Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val  
                     420                      425                      430  
 Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp  
                     435                      440                      445  
 Ser Gly Met Leu Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr  
                     450                      455                      460  
 Ile Ala Met Pro Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr  
 465                      470                      475                      480  
 Ser Leu Ala Met Ala Lys Gln Lys Leu Pro Arg Lys Arg Lys Lys His  
                     485                      490                      495  
 Ile Pro Pro Ala Pro Leu Ala Ser Ser Pro Thr Phe Cys Lys Thr Glu  
                     500                      505                      510  
 Leu Asn Met Ala Cys Asn Ser Thr Gln Ser Asp Thr Cys Leu Gly Lys  
                     515                      520                      525  
 Glu Asn Arg Leu Leu Glu His Asn Arg Ser Val Leu Ser Gly Asp Asp  
                     530                      535                      540  
 Ser Thr Gly Ser Glu Pro Pro Leu Ser Pro Pro Glu Arg Leu Pro Ile  
 545                      550                      555                      560  
 Arg Arg Ser Ser Thr Arg Asp Lys Asn Arg Arg Gly Glu Thr Cys Phe  
                     565                      570                      575  
 Leu Leu Thr Thr Gly Asp Tyr Thr Cys Ala Ser Asp Gly Gly Ile Arg  
                     580                      585                      590  
 Lys Gly Tyr Glu Lys Ser Arg Ser Leu Asn Asn Ile Ala Gly Leu Ala  
                     595                      600                      605  
 Gly Asn Ala Leu Arg Leu Ser Pro Val Thr Ser Pro Tyr Asn Ser Pro  
                     610                      615                      620  
 Cys Pro Leu Arg Arg Ser Arg Ser Pro Ile Pro Ser Ile Leu  
 625                      630                      635

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 <212> PRT  
 <213> Homo sapiens  
  
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 35 40 45  
 Thr Ala Gly Asp Lys Leu Gln Pro Ser Pro Pro Pro Leu Ser Pro Pro  
 50 55 60  
 Pro Arg Ala Pro Pro Leu Ser Pro Gly Pro Gly Gly Cys Phe Glu Gly  
 65 70 75 80  
 Gly Ala Gly Asn Cys Ser Ser Arg Gly Gly Arg Ala Ser Asp His Pro  
 85 90 95  
 Gly Gly Gly Arg Glu Phe Phe Phe Asp Arg His Pro Gly Val Phe Ala  
 100 105 110  
 Tyr Val Leu Asn Tyr Tyr Arg Thr Gly Lys Leu His Cys Pro Ala Asp  
 115 120 125  
 Val Cys Gly Pro Leu Phe Glu Glu Glu Leu Ala Phe Trp Gly Ile Asp  
 130 135 140  
 Glu Thr Asp Val Glu Pro Cys Cys Trp Met Thr Tyr Arg Gln His Arg  
 145 150 155 160  
 Asp Ala Glu Glu Ala Leu Asp Ile Phe Glu Thr Pro Asp Leu Ile Gly  
 165 170 175  
 Gly Asp Pro Gly Asp Asp Glu Asp Leu Ala Ala Lys Arg Leu Gly Ile  
 180 185 190  
 Glu Asp Ala Ala Gly Leu Gly Gly Pro Asp Gly Lys Ser Gly Arg Trp  
 195 200 205  
 Arg Arg Leu Gln Pro Arg Met Trp Ala Leu Phe Glu Asp Pro Tyr Ser  
 210 215 220  
 Ser Arg Ala Ala Arg Phe Ile Ala Phe Ala Ser Leu Phe Phe Ile Leu  
 225 230 235 240  
 Val Ser Ile Thr Thr Phe Cys Leu Glu Thr His Glu Ala Phe Asn Ile  
 245 250 255  
 Val Lys Asn Lys Thr Glu Pro Val Ile Asn Gly Thr Ser Val Val Leu  
 260 265 270  
 Gln Tyr Glu Ile Glu Thr Asp Pro Ala Leu Thr Tyr Val Glu Gly Val  
 275 280 285  
 Cys Val Val Trp Phe Thr Phe Glu Phe Leu Val Arg Ile Val Phe Ser  
 290 295 300



Pro Asn Lys Leu Glu Phe Ile Lys Asn Leu Leu Asn Ile Ile Asp Phe  
305 310 315 320

Val Ala Ile Leu Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser  
325 330 335

Ser Lys Ala Ala Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe  
340 345 350

Val Arg Ile Leu Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu  
355 360 365

Arg Val Leu Gly His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu  
370 375 380

Leu Ile Ile Phe Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile  
385 390 395 400

Tyr Tyr Ala Glu Arg Val Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser  
405 410 415

Glu His Thr Gln Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val  
420 425 430

Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp  
435 440 445

Ser Gly Met Leu Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr  
450 455 460

Ile Ala Met Pro Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr  
465 470 475 480

Ser Leu Ala Met Ala Lys Gln Lys Leu Pro Arg Lys Arg Lys Lys His  
485 490 495

Ile Pro Pro Ala Pro Gln Ala Ser Ser Pro Thr Phe Cys Lys Thr Glu  
500 505 510

Leu Asn Met Ala Cys Asn Ser Thr Gln Ser Asp Thr Cys Leu Gly Lys  
515 520 525

Asp Asn Arg Leu Leu Glu His Asn Arg Ser Val Leu Ser Gly Asp Asp  
530 535 540

Ser Thr Gly Ser Glu Pro Pro Leu Ser Pro Pro Glu Arg Leu Pro Ile  
545 550 555 560

Arg Arg Ser Ser Thr Arg Asp Lys Asn Arg Arg Gly Glu Thr Cys Phe  
565 570 575

Leu Leu Thr Thr Gly Asp Tyr Thr Cys Ala Ser Asp Gly Gly Ile Arg  
580 585 590

Lys Asp Asn Cys Lys Glu Val Val Ile Thr Gly Tyr Thr Gln Ala Glu  
595 600 605

[illegible]

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 46 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Gly | Lys | Ile | Glu | Asn | Asn | Glu | Arg | Val | Ile | Leu | Asn | Val | Gly | Gly |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr      | Arg | His | Glu | Thr | Tyr | Arg | Ser | Thr | Leu | Lys | Thr | Leu | Pro | Gly | Thr |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg      | Leu | Ala | Leu | Leu | Ala | Ser | Ser | Glu | Pro | Gln | Gly | Asp | Cys | Leu | Thr |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala      | Ala | Gly | Asp | Lys | Leu | Gln | Pro | Leu | Pro | Pro | Pro | Leu | Ser | Pro | Pro |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro      | Arg | Pro | Pro | Pro | Leu | Ser | Pro | Val | Pro | Ser | Gly | Cys | Phe | Glu | Gly |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gly      | Ala | Gly | Asn | Cys | Ser | Ser | His | Gly | Gly | Asn | Gly | Ser | Asp | His | Pro |
|          |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly      | Gly | Gly | Arg | Glu | Phe | Phe | Phe | Asp | Arg | His | Pro | Gly | Val | Phe | Ala |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr      | Val | Leu | Asn | Tyr | Tyr | Arg | Thr | Gly | Lys | Leu | His | Cys | Pro | Ala | Asp |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val      | Cys | Gly | Pro | Leu | Phe | Glu | Glu | Glu | Leu | Ala | Phe | Trp | Gly | Ile | Asp |
|          | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu      | Thr | Asp | Val | Glu | Pro | Cys | Cys | Trp | Met | Thr | Tyr | Arg | Gln | His | Arg |
| 145      |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Asp      | Ala | Glu | Glu | Ala | Leu | Asp | Ile | Phe | Glu | Thr | Pro | Asp | Leu | Ile | Gly |
|          |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Gly      | Asp | Pro | Gly | Asp | Asp | Glu | Asp | Leu | Gly | Gly | Lys | Arg | Leu | Gly | Ile |
|          |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu      | Asp | Ala | Ala | Gly | Leu | Gly | Gly | Pro | Asp | Gly | Lys | Ser | Gly | Arg | Trp |
|          |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Arg      | Lys | Leu | Gln | Pro | Arg | Met | Trp | Ala | Leu | Phe | Glu | Asp | Pro | Tyr | Ser |
|          | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser      | Arg | Ala | Ala | Arg | Phe | Ile | Ala | Phe | Ala | Ser | Leu | Phe | Phe | Ile | Leu |
| 225      |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val      | Ser | Ile | Thr | Thr | Phe | Cys | Leu | Glu | Thr | His | Glu | Ala | Phe | Asn | Ile |
|          |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |

Val Lys Asn Lys Thr Glu Pro Val Ile Asn Gly Thr Ser Ala Val Leu  
 260 265 270  
 Gln Tyr Glu Ile Glu Thr Asp Pro Ala Leu Thr Tyr Val Glu Gly Val  
 275 280 285  
 Cys Val Val Trp Phe Thr Phe Glu Phe Leu Val Arg Ile Val Phe Ser  
 290 295 300  
 Pro Asn Lys Leu Glu Phe Ile Lys Asn Leu Leu Asn Ile Ile Asp Phe  
 305 310 315 320  
 Val Ala Ile Leu Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser  
 325 330 335  
 Ser Lys Ala Ala Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe  
 340 345 350  
 Val Arg Ile Leu Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu  
 355 360 365  
 Arg Val Leu Gly His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu  
 370 375 380  
 Leu Ile Ile Phe Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile  
 385 390 395 400  
 Tyr Tyr Ala Glu Arg Val Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser  
 405 410 415  
 Glu His Thr Gln Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val  
 420 425 430  
 Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp  
 435 440 445  
 Ser Gly Met Leu Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr  
 450 455 460  
 Ile Ala Met Pro Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr  
 465 470 475 480  
 Ser Leu Ala Met Ala Lys Gln Lys Leu Pro Arg Lys Arg Lys Lys His  
 485 490 495  
 Ile Pro Pro Ala Pro Leu Ala Ser Ser Pro Thr Phe Cys Lys Thr Glu  
 500 505 510  
 Leu Asn Met Ala Cys Asn Ser Thr Gln Ser Asp Thr Cys Leu Gly Lys  
 515 520 525  
 Glu Asn Arg Leu Leu Glu His Asn Arg Ser Val Leu Ser Gly Asp Asp  
 530 535 540  
 Ser Thr Gly Ser Glu Pro Pro Leu Ser Pro Pro Glu Arg Leu Pro Ile  
 545 550 555 560

Arg Arg Ser Ser Thr Arg Asp Lys Asn Arg Arg Gly Glu Thr Cys Phe  
565 570 575  
Leu Leu Thr Thr Gly Asp Tyr Thr Cys Ala Ser Asp Gly Gly Ile Arg  
580 585 590  
Lys Asp Asn Cys Lys Asp Val Val Ile Thr Gly Tyr Thr Gln Ala Glu  
595 600 605  
Ala Arg Ser Leu Thr  
610

<210> 47  
<211> 624  
<212> PRT  
<213> Rattus norvegicus

<400> 47  
Met Ser Lys Ile Glu Asn Asn Glu Arg Val Ile Leu Asn Val Gly Gly  
1 5 10 15  
Thr Arg His Glu Thr Tyr Arg Ser Thr Leu Lys Thr Leu Pro Gly Thr  
20 25 30  
Arg Leu Ala Leu Leu Ala Ser Ser Glu Pro Gln Gly Asp Cys Leu Thr  
35 40 45  
Ala Ala Gly Asp Lys Leu Gln Pro Leu Pro Pro Pro Leu Ser Pro Pro  
50 55 60  
Pro Arg Pro Pro Pro Leu Ser Pro Val Pro Ser Gly Cys Phe Glu Gly  
65 70 75 80  
Gly Ala Gly Asn Cys Ser Ser His Gly Gly Asn Gly Ser Asp His Pro  
85 90 95  
Gly Gly Gly Arg Glu Phe Phe Phe Asp Arg His Pro Gly Val Phe Ala  
100 105 110  
Tyr Val Leu Asn Tyr Tyr Arg Thr Gly Lys Leu His Cys Pro Ala Asp  
115 120 125  
Val Cys Gly Pro Leu Phe Glu Glu Leu Ala Phe Trp Gly Ile Asp  
130 135 140  
Glu Thr Asp Val Glu Pro Cys Cys Trp Met Thr Tyr Arg Gln His Arg  
145 150 155 160  
Asp Ala Glu Glu Ala Leu Asp Ile Phe Glu Thr Pro Asp Leu Ile Gly  
165 170 175  
Gly Asp Pro Gly Asp Asp Glu Asp Leu Gly Gly Lys Arg Leu Gly Ile  
180 185 190  
Glu Asp Ala Ala Gly Leu Gly Gly Pro Asp Gly Lys Ser Gly Arg Trp

| 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Lys | Leu | Gln | Pro | Arg | Met | Trp | Ala | Leu | Phe | Glu | Asp | Pro | Tyr | Ser |
| 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Ser | Arg | Ala | Ala | Arg | Phe | Ile | Ala | Phe | Ala | Ser | Leu | Phe | Phe | Ile | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Ser | Ile | Thr | Thr | Phe | Cys | Leu | Glu | Thr | His | Glu | Ala | Phe | Asn | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Val | Lys | Asn | Lys | Thr | Glu | Pro | Val | Ile | Asn | Gly | Thr | Ser | Ala | Val | Leu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Gln | Tyr | Glu | Ile | Glu | Thr | Asp | Pro | Ala | Leu | Thr | Tyr | Val | Glu | Gly | Val |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Cys | Val | Val | Trp | Phe | Thr | Phe | Glu | Phe | Leu | Val | Arg | Ile | Val | Phe | Ser |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Pro | Asn | Lys | Leu | Glu | Phe | Ile | Lys | Asn | Leu | Leu | Asn | Ile | Ile | Asp | Phe |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Val | Ala | Ile | Leu | Pro | Phe | Tyr | Leu | Glu | Val | Gly | Leu | Ser | Gly | Leu | Ser |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ser | Lys | Ala | Ala | Lys | Asp | Val | Leu | Gly | Phe | Leu | Arg | Val | Val | Arg | Phe |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |
| Val | Arg | Ile | Leu | Arg | Ile | Phe | Lys | Leu | Thr | Arg | His | Phe | Val | Gly | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Val | Leu | Gly | His | Thr | Leu | Arg | Ala | Ser | Thr | Asn | Glu | Phe | Leu | Leu |
|     |     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |
| Leu | Ile | Ile | Phe | Leu | Ala | Leu | Gly | Val | Leu | Ile | Phe | Ala | Thr | Met | Ile |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     |     | 400 |
| Tyr | Tyr | Ala | Glu | Arg | Val | Gly | Ala | Gln | Pro | Asn | Asp | Pro | Ser | Ala | Ser |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | His | Thr | Gln | Phe | Lys | Asn | Ile | Pro | Ile | Gly | Phe | Trp | Trp | Ala | Val |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Val | Thr | Met | Thr | Thr | Leu | Gly | Tyr | Gly | Asp | Met | Tyr | Pro | Gln | Thr | Trp |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Ser | Gly | Met | Leu | Val | Gly | Ala | Leu | Cys | Ala | Leu | Ala | Gly | Val | Leu | Thr |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ile | Ala | Met | Pro | Val | Pro | Val | Ile | Val | Asn | Asn | Phe | Gly | Met | Tyr | Tyr |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |     |
| Ser | Leu | Ala | Met | Ala | Lys | Gln | Lys | Leu | Pro | Arg | Lys | Arg | Lys | Lys | His |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ile | Pro | Pro | Ala | Pro | Leu | Ala | Ser | Ser | Pro | Thr | Phe | Cys | Lys | Thr | Glu |

500                      505                      510  
 Leu Asn Met Ala Cys Asn Ser Thr Gln Ser Asp Thr Cys Leu Gly Lys  
       515                      520                      525  
 Glu Asn Arg Leu Leu Glu His Asn Arg Ser Val Leu Ser Gly Asp Asp  
       530                      535                      540  
 Ser Thr Gly Ser Glu Pro Pro Leu Ser Pro Pro Glu Arg Leu Pro Ile  
 545                      550                      555                      560  
 Arg Arg Ser Ser Thr Arg Asp Lys Asn Arg Arg Gly Glu Thr Cys Phe  
                     565                      570                      575  
 Leu Leu Thr Thr Gly Asp Tyr Thr Cys Ala Ser Asp Gly Gly Ile Arg  
                     580                      585                      590  
 Lys Val Leu Tyr Arg Ile Tyr His Gly Phe Leu Pro Ala Glu Asn Gly  
                     595                      600                      605  
 Thr Leu Arg Phe Ser His Ser Lys Asp Cys Thr Gly Asn Phe Cys Tyr  
       610                      615                      620

<210> 48  
 <211> 98  
 <212> PRT  
 <213> Homo sapiens

<400> 48  
 Arg Val Arg Leu Asn Val Gly Gly Lys Arg Phe Glu Thr Ser Lys Ser  
   1                    5                    10                    15  
 Thr Leu Thr Arg Phe Pro Asp Thr Arg Leu Gly Arg Leu Leu Glu Cys  
                     20                    25                    30  
 Arg Asp Cys Asp Phe Tyr Asp Asp Ala Thr Gly Glu Tyr Phe Phe Asp  
                     35                    40                    45  
 Arg Ser Pro Lys His Phe Glu His Ile Leu Asn Phe Tyr Arg Thr Gly  
                     50                    55                    60  
 Gly Lys Leu His Arg Pro Glu Glu Val Cys Leu Glu Ser Phe Leu Glu  
   65                    70                    75                    80  
 Glu Leu Glu Phe Tyr Gly Leu Asp Glu Leu Ala Ile Glu Leu Cys Cys  
                     85                    90                    95

Glu Asp

<210> 49  
 <211> 185

<212> PRT

<213> Homo sapiens

<400> 49

Leu Glu Ile Leu Asp Tyr Val Phe Thr Val Ile Phe Thr Leu Glu Met  
1 5 10 15

Leu Leu Lys Phe Ile Ala Leu Gly Phe Lys Leu Lys Tyr Leu Arg Ser  
20 25 30

Pro Trp Asn Ile Leu Asp Phe Leu Ile Val Leu Pro Ser Leu Ile Asp  
35 40 45

Leu Ile Leu Phe Leu Ser Gly Gly Gly Ser Val Leu Arg Leu Leu Arg  
50 55 60

Leu Leu Arg Leu Leu Arg Leu Leu Arg Arg Leu Glu Gly Leu Arg Thr  
65 70 75 80

Leu Leu Gln Ser Leu Gly Arg Ser Leu Lys Ser Leu Leu Asn Leu Leu  
85 90 95

Leu Leu Leu Leu Leu Leu Leu Phe Ile Phe Ala Ile Ile Gly Val Gln  
100 105 110

Leu Phe Gly Gly Glu Phe Asn Lys Cys Cys Asp Gly Val Asn Pro Ile  
115 120 125

Asn Gly Asn Ser Asn Phe Asp Ser Phe Gly Glu Ala Phe Tyr Trp Leu  
130 135 140

Phe Arg Thr Leu Thr Thr Glu Gly Trp Gly Asp Ile Met Pro Asp Thr  
145 150 155 160

Leu Asp Ala Pro Val Leu Gly Lys Ile Phe Phe Val Ile Phe Ile Ile  
165 170 175

Leu Gly Gly Leu Leu Leu Leu Asn Leu  
180 185

<210> 50

<211> 95

<212> PRT

<213> Homo sapiens

<400> 50

Val Thr Leu Asn Val Gly Gly Lys Lys Phe His Ala His Lys Ala Val  
1 5 10 15

Leu Ala Ala His Ser Pro Tyr Phe Lys Ala Leu Phe Ser Ser Asp Phe  
20 25 30

Lys Glu Ser Asp Lys Ser Glu Ile Tyr Leu Phe Asp Val Ser Pro Glu  
35 40 45

Asp Phe Arg Ala Leu Leu Asn Phe Leu Tyr Thr Gly Lys Leu Asp Ile

|                                                                                                     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 50                                                                                                  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Pro                                                                                                 | Glu | Glu | Asn | Val | Glu | Glu | Leu | Leu | Glu | Leu | Ala | Asp | Tyr | Leu | Gln |
| 65                                                                                                  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |
| Ile                                                                                                 | Pro | Gly | Leu | Val | Glu | Leu | Cys | Glu | Glu | Phe | Leu | Leu | Lys | Asn |     |
|                                                                                                     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| <p>&lt;210&gt; 51</p> <p>&lt;211&gt; 371</p> <p>&lt;212&gt; PRT</p> <p>&lt;213&gt; Mus musculus</p> |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <p>&lt;400&gt; 51</p>                                                                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met                                                                                                 | Asn | Gly | Ser | Asp | Ser | Gln | Gly | Ala | Glu | Asp | Ser | Ser | Gln | Glu | Gly |
| 1                                                                                                   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly                                                                                                 | Gly | Gly | Trp | Gln | Pro | Glu | Ala | Val | Leu | Val | Pro | Leu | Phe | Phe | Ala |
|                                                                                                     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu                                                                                                 | Ile | Phe | Leu | Val | Gly | Ala | Val | Gly | Asn | Ala | Leu | Val | Leu | Ala | Val |
|                                                                                                     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu                                                                                                 | Leu | Arg | Gly | Gly | Gln | Ala | Val | Ser | Thr | Thr | Asn | Leu | Phe | Ile | Leu |
| 50                                                                                                  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asn                                                                                                 | Leu | Gly | Val | Ala | Asp | Leu | Cys | Phe | Ile | Leu | Cys | Cys | Val | Pro | Phe |
| 65                                                                                                  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gln                                                                                                 | Ala | Thr | Ile | Tyr | Thr | Leu | Asp | Asp | Trp | Val | Phe | Gly | Ser | Leu | Leu |
|                                                                                                     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Cys                                                                                                 | Lys | Ala | Val | His | Phe | Leu | Ile | Phe | Leu | Thr | Met | His | Ala | Ser | Ser |
|                                                                                                     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe                                                                                                 | Thr | Leu | Ala | Ala | Val | Ser | Leu | Asp | Arg | Tyr | Leu | Ala | Ile | Arg | Tyr |
|                                                                                                     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro                                                                                                 | Met | His | Ser | Arg | Glu | Leu | Arg | Thr | Pro | Arg | Asn | Ala | Leu | Ala | Ala |
|                                                                                                     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile                                                                                                 | Gly | Leu | Ile | Trp | Gly | Leu | Ala | Leu | Leu | Phe | Ser | Gly | Pro | Tyr | Leu |
| 145                                                                                                 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser                                                                                                 | Tyr | Tyr | Ser | Gln | Ser | Gln | Leu | Ala | Asn | Leu | Thr | Val | Cys | His | Pro |
|                                                                                                     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ala                                                                                                 | Trp | Ser | Ala | Pro | Arg | Arg | Arg | Ala | Met | Asp | Leu | Cys | Thr | Phe | Val |
|                                                                                                     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe                                                                                                 | Ser | Tyr | Leu | Leu | Pro | Val | Leu | Val | Leu | Ser | Leu | Thr | Tyr | Ala | Arg |
|                                                                                                     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr                                                                                                 | Leu | His | Tyr | Leu | Trp | Arg | Thr | Val | Asp | Pro | Val | Ala | Ala | Gly | Ser |
|                                                                                                     |     |     |     |     | 210 |     | 215 |     |     |     | 220 |     |     |     |     |



Gly Ser Gln Arg Ala Lys Arg Lys Val Thr Arg Met Ile Val Ile Val  
 225 230 235 240  
 Ala Val Leu Phe Cys Leu Cys Trp Met Pro His His Ala Leu Ile Leu  
 245 250 255  
 Cys Val Trp Phe Gly Arg Phe Pro Leu Thr Arg Ala Thr Tyr Ala Leu  
 260 265 270  
 Arg Ile Leu Ser His Leu Val Ser Tyr Ala Asn Ser Cys Val Asn Pro  
 275 280 285  
 Ile Val Tyr Ala Leu Val Ser Lys His Phe Arg Lys Gly Phe Arg Lys  
 290 295 300  
 Ile Cys Ala Gly Leu Leu Arg Arg Ala Pro Arg Arg Ala Ser Gly Arg  
 305 310 315 320  
 Val Cys Ile Leu Ala Pro Gly Asn His Ser Gly Gly Met Leu Glu Pro  
 325 330 335  
 Glu Ser Thr Asp Leu Thr Gln Val Ser Glu Ala Ala Gly Pro Leu Val  
 340 345 350  
 Pro Ala Pro Ala Leu Pro Asn Cys Thr Thr Leu Ser Arg Thr Leu Asp  
 355 360 365  
 Pro Ala Cys  
 370

<210> 52  
 <211> 387  
 <212> PRT  
 <213> Homo sapiens

<400> 52  
 Met Asn Val Ser Gly Cys Pro Gly Ala Gly Asn Ala Ser Gln Ala Gly  
 1 5 10 15  
 Gly Gly Gly Gly Trp His Pro Glu Ala Val Ile Val Pro Leu Leu Phe  
 20 25 30  
 Ala Leu Ile Phe Leu Val Gly Thr Val Gly Asn Thr Leu Val Leu Ala  
 35 40 45  
 Val Leu Leu Arg Gly Gly Gln Ala Val Ser Thr Thr Asn Leu Phe Ile  
 50 55 60  
 Leu Asn Leu Gly Val Ala Asp Leu Cys Phe Ile Leu Cys Cys Val Pro  
 65 70 75 80  
 Phe Gln Ala Thr Ile Tyr Thr Leu Asp Gly Trp Val Phe Gly Ser Leu  
 85 90 95  
 Leu Cys Lys Ala Val His Phe Leu Ile Phe Leu Thr Met His Ala Ser  
 100 105 110



<211> 372

<212> PRT

<213> Rattus norvegicus

<400> 53

Met Asn Gly Ser Gly Ser Gln Gly Ala Glu Asn Thr Ser Gln Glu Gly  
1 5 10 15  
Gly Ser Gly Gly Trp Gln Pro Glu Ala Val Leu Val Pro Leu Phe Phe  
20 25 30  
Ala Leu Ile Phe Leu Val Gly Thr Val Gly Asn Ala Leu Val Leu Ala  
35 40 45  
Val Leu Leu Arg Gly Gly Gln Ala Val Ser Thr Thr Asn Leu Phe Ile  
50 55 60  
Leu Asn Leu Gly Val Ala Asp Leu Cys Phe Ile Leu Cys Cys Val Pro  
65 70 75 80  
Phe Gln Ala Thr Ile Tyr Thr Leu Asp Asp Trp Val Phe Gly Ser Leu  
85 90 95  
Leu Cys Lys Ala Val His Phe Leu Ile Phe Leu Thr Met His Ala Ser  
100 105 110  
Ser Phe Thr Leu Ala Ala Val Ser Leu Asp Arg Tyr Leu Ala Ile Arg  
115 120 125  
Tyr Pro Leu His Ser Arg Glu Leu Arg Thr Pro Arg Asn Ala Leu Ala  
130 135 140  
Ala Ile Gly Leu Ile Trp Gly Leu Ala Leu Leu Phe Ser Gly Pro Tyr  
145 150 155 160  
Leu Ser Tyr Tyr Arg Gln Ser Gln Leu Ala Asn Leu Thr Val Cys His  
165 170 175  
Pro Ala Trp Ser Ala Pro Arg Arg Arg Ala Met Asp Leu Cys Thr Phe  
180 185 190  
Val Phe Ser Tyr Leu Leu Pro Val Leu Val Leu Ser Leu Thr Tyr Ala  
195 200 205  
Arg Thr Leu Arg Tyr Leu Trp Arg Thr Val Asp Pro Val Thr Ala Gly  
210 215 220  
Ser Gly Ser Gln Arg Ala Lys Arg Lys Val Thr Arg Met Ile Ile Ile  
225 230 235 240  
Val Ala Val Leu Phe Cys Leu Cys Trp Met Pro His His Ala Leu Ile  
245 250 255  
Leu Cys Val Trp Phe Gly Arg Phe Pro Leu Thr Arg Ala Thr Tyr Ala  
260 265 270  
Leu Arg Ile Leu Ser His Leu Val Ser Tyr Ala Asn Ser Cys Val Asn

275 280 285  
 Pro Ile Val Tyr Ala Leu Val Ser Lys His Phe Arg Lys Gly Phe Arg  
 290 295 300  
 Lys Ile Cys Ala Gly Leu Leu Arg Pro Ala Pro Arg Arg Ala Ser Gly  
 305 310 315 320  
 Arg Val Ser Ile Leu Ala Pro Gly Asn His Ser Gly Ser Met Leu Glu  
 325 330 335  
 Gln Glu Ser Thr Asp Leu Thr Gln Val Ser Glu Ala Ala Gly Pro Leu  
 340 345 350  
 Val Pro Pro Pro Ala Leu Pro Asn Cys Thr Ala Ser Ser Arg Thr Leu  
 355 360 365  
 Asp Pro Ala Cys  
 370

<210> 54  
 <211> 371  
 <212> PRT  
 <213> Mus musculus

<220>  
 <221> VARIANT  
 <222> (325)  
 <223> Wherein Xaa is any amino acid as defined in the  
 specification.

<220>  
 <221> VARIANT  
 <222> (360)  
 <223> Wherein Xaa is any amino acid as defined in the  
 specification

<400> 54  
 Met Asn Gly Ser Asp Ser Gln Gly Ala Glu Asp Ser Ser Gln Glu Gly  
 1 5 10 15  
 Gly Gly Gly Trp Gln Pro Glu Ala Val Leu Val Pro Leu Phe Phe Ala  
 20 25 30  
 Leu Ile Phe Leu Val Gly Ala Val Gly Asn Ala Leu Val Leu Ala Val  
 35 40 45  
 Leu Leu Arg Gly Gly Gln Ala Val Ser Thr Thr Asn Leu Phe Ile Leu  
 50 55 60  
 Asn Leu Gly Val Ala Asp Leu Cys Phe Ile Leu Cys Cys Val Pro Phe  
 65 70 75 80  
 Gln Ala Thr Ile Tyr Thr Leu Asp Asp Trp Val Phe Gly Ser Leu Leu  
 85 90 95

Cys Lys Ala Val His Phe Leu Ile Phe Leu Thr Met His Ala Ser Ser  
 100 105 110  
 Phe Thr Leu Ala Ala Val Ser Leu Asp Arg Tyr Leu Ala Ile Arg Tyr  
 115 120 125  
 Pro Leu His Ser Arg Glu Leu Arg Thr Pro Arg Asn Ala Leu Ala Ala  
 130 135 140  
 Ile Gly Leu Ile Trp Gly Leu Ala Leu Leu Phe Ser Gly Pro Tyr Leu  
 145 150 155 160  
 Ser Tyr Tyr Ser Gln Ser Gln Leu Ala Asn Leu Thr Val Cys His Pro  
 165 170 175  
 Ala Trp Ser Ala Pro Arg Arg Pro Trp Asn Ser Cys Thr Phe Cys Leu  
 180 185 190  
 Ser Tyr Leu Leu Pro Val Leu Val Leu Ser Leu Thr Tyr Ala Arg Thr  
 195 200 205  
 Leu His Tyr Leu Trp Arg Thr Val Asp Pro Val Val Ala Gly Ser Gly  
 210 215 220  
 Ser Gln Arg Ala Lys Arg Lys Val Thr Arg Met Ile Val Ile Val Ala  
 225 230 235 240  
 Val Leu Phe Cys Leu Cys Trp Met Pro His His Ala Leu Ile Leu Cys  
 245 250 255  
 Val Trp Phe Gly Arg Phe Pro Leu Thr Arg Ala Thr Tyr Ala Leu Arg  
 260 265 270  
 Ile Leu Ser His Leu Val Ser Tyr Ala Asn Ser Cys Val Asn Pro Ile  
 275 280 285  
 Val Tyr Ala Leu Val Ser Lys His Phe Arg Lys Gly Phe Arg Lys Ile  
 290 295 300  
 Cys Ala Gly Leu Leu Arg Arg Ala Pro Arg Arg Ala Ser Gly Arg Val  
 305 310 315 320  
 Cys Ile Leu Ala Xaa Gly Asn His Ser Gly Gly Met Leu Glu Pro Glu  
 325 330 335  
 Ser Thr Asp Leu Thr Gln Val Lys Arg Gly Ser Arg Ala Pro Arg Pro  
 340 345 350  
 Arg Thr Arg Thr Ser Gln Thr Xaa Thr Thr Leu Ser Arg Thr Leu Asp  
 355 360 365  
 Pro Ala Cys  
 370

<210> 55

<211> 370

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Leu Val Tyr Ser Leu Ala Ser Arg His Phe Arg Ala Arg Phe Arg Arg  
290 295 300

Leu Trp Pro Cys Gly Arg Arg Arg His Arg His His His Arg Ala His  
305 310 315 320

Arg Ala Leu Arg Arg Val Gln Pro Ala Ser Ser Gly Pro Ala Gly Tyr  
325 330 335

Pro Gly Asp Ala Arg Pro Arg Gly Trp Ser Met Glu Pro Arg Gly Asp  
340 345 350

Ala Leu Arg Gly Gly Gly Glu Thr Arg Leu Thr Leu Ser Pro Arg Gly  
355 360 365

Pro Gln  
370

<210> 56

<211> 205

<212> PRT

<213> Homo sapiens

<400> 56

Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe Val  
1 5 10 15

Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile Asp  
20 25 30

Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg Thr  
35 40 45

Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala Leu  
50 55 60

Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val Glu  
65 70 75 80

Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser Val  
85 90 95

Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Val Leu Pro  
100 105 110

Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu Arg  
115 120 125

Lys Arg Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser Glu  
130 135 140

Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Phe Val Leu  
145 150 155 160

Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys Leu

|                                                                 |     |  |     |  |     |
|-----------------------------------------------------------------|-----|--|-----|--|-----|
|                                                                 | 165 |  | 170 |  | 175 |
| Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu Trp |     |  |     |  |     |
|                                                                 | 180 |  | 185 |  | 190 |
| Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr             |     |  |     |  |     |
|                                                                 | 195 |  | 200 |  | 205 |
| <210> 57                                                        |     |  |     |  |     |
| <211> 337                                                       |     |  |     |  |     |
| <212> PRT                                                       |     |  |     |  |     |
| <213> Homo sapiens                                              |     |  |     |  |     |
| <400> 57                                                        |     |  |     |  |     |
| Met Asn Glu Pro Leu Asp Tyr Leu Ala Asn Ala Ser Asp Phe Pro Asp |     |  |     |  |     |
| 1                                                               | 5   |  | 10  |  | 15  |
| Tyr Ala Ala Ala Phe Gly Asn Cys Thr Asp Glu Asn Ile Pro Leu Lys |     |  |     |  |     |
|                                                                 | 20  |  | 25  |  | 30  |
| Met His Tyr Leu Pro Val Ile Tyr Gly Ile Ile Phe Leu Val Gly Phe |     |  |     |  |     |
|                                                                 | 35  |  | 40  |  | 45  |
| Pro Gly Asn Ala Val Val Ile Ser Thr Tyr Ile Phe Lys Met Arg Pro |     |  |     |  |     |
|                                                                 | 50  |  | 55  |  | 60  |
| Trp Lys Ser Ser Thr Ile Ile Met Leu Asn Leu Ala Cys Thr Asp Leu |     |  |     |  |     |
|                                                                 | 65  |  | 70  |  | 75  |
| Leu Tyr Leu Thr Ser Leu Pro Phe Leu Ile His Tyr Tyr Ala Ser Gly |     |  |     |  |     |
|                                                                 | 85  |  | 90  |  | 95  |
| Glu Asn Trp Ile Phe Gly Asp Phe Met Cys Lys Phe Ile Arg Phe Ser |     |  |     |  |     |
|                                                                 | 100 |  | 105 |  | 110 |
| Phe His Phe Asn Leu Tyr Ser Ser Ile Leu Phe Leu Thr Cys Phe Ser |     |  |     |  |     |
|                                                                 | 115 |  | 120 |  | 125 |
| Ile Phe Arg Tyr Cys Val Ile Ile His Pro Met Ser Cys Phe Ser Ile |     |  |     |  |     |
|                                                                 | 130 |  | 135 |  | 140 |
| His Lys Thr Arg Cys Ala Val Val Ala Cys Ala Val Val Trp Ile Ile |     |  |     |  |     |
|                                                                 | 145 |  | 150 |  | 155 |
| Ser Leu Val Ala Val Ile Pro Met Thr Phe Leu Ile Thr Ser Thr Asn |     |  |     |  |     |
|                                                                 | 165 |  | 170 |  | 175 |
| Arg Thr Asn Arg Ser Ala Cys Leu Asp Leu Thr Ser Ser Asp Glu Leu |     |  |     |  |     |
|                                                                 | 180 |  | 185 |  | 190 |
| Asn Thr Ile Lys Trp Tyr Asn Leu Ile Leu Thr Ala Thr Thr Phe Cys |     |  |     |  |     |
|                                                                 | 195 |  | 200 |  | 205 |
| Leu Pro Leu Val Ile Val Thr Leu Cys Tyr Thr Thr Ile Ile His Thr |     |  |     |  |     |
|                                                                 | 210 |  | 215 |  | 220 |



Leu Thr His Gly Leu Gln Thr Asp Ser Cys Leu Lys Gln Lys Ala Arg  
225 230 235 240

Arg Leu Thr Ile Leu Leu Leu Leu Ala Phe Tyr Val Cys Phe Leu Pro  
245 250 255

Phe His Ile Leu Arg Val Ile Arg Ile Glu Ser Arg Leu Leu Ser Ile  
260 265 270

Ser Cys Ser Ile Glu Asn Gln Ile His Glu Ala Tyr Ile Val Ser Arg  
275 280 285

Pro Leu Ala Ala Leu Asn Thr Phe Gly Asn Leu Leu Leu Tyr Val Val  
290 295 300

Val Ser Asp Asn Phe Gln Gln Ala Val Cys Ser Thr Val Arg Cys Lys  
305 310 315 320

Val Ser Gly Asn Leu Glu Gln Ala Lys Lys Ile Ser Tyr Ser Asn Asn  
325 330 335

Pro

<210> 58

<211> 373

<212> PRT

<213> Mus musculus

<400> 58

Met Thr Glu Val Pro Trp Ser Val Val Pro Asn Gly Thr Asp Ala Ala  
1 5 10 15

Phe Leu Ala Gly Leu Gly Ser Leu Trp Gly Asn Ser Thr Val Ala Ser  
20 25 30

Thr Ala Ala Val Ser Ser Ser Phe Gln Cys Ala Leu Thr Lys Thr Gly  
35 40 45

Phe Gln Phe Tyr Tyr Leu Pro Ala Val Tyr Ile Leu Val Phe Ile Ile  
50 55 60

Gly Phe Leu Gly Asn Ser Val Ala Ile Trp Met Phe Val Phe His Met  
65 70 75 80

Lys Pro Trp Ser Gly Ile Ser Val Tyr Met Phe Asn Leu Ala Leu Ala  
85 90 95

Asp Phe Leu Tyr Val Leu Thr Leu Pro Ala Leu Ile Phe Tyr Tyr Phe  
100 105 110

Asn Lys Thr Asp Trp Ile Phe Gly Asp Ala Met Cys Lys Leu Gln Arg  
115 120 125

Phe Ile Phe His Val Asn Leu Tyr Gly Ser Ile Leu Phe Leu Thr Cys  
130 135 140



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
|     | 20  |     |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |  |  |  |
| Thr | Ala | Ala | Val | Ser | Ser | Ser | Phe | Lys | Cys | Ala | Leu | Thr | Lys | Thr | Gly |  |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |  |
| Phe | Gln | Phe | Tyr | Tyr | Leu | Pro | Ala | Val | Tyr | Ile | Leu | Val | Phe | Ile | Ile |  |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |  |
| Gly | Phe | Leu | Gly | Asn | Ser | Val | Ala | Ile | Trp | Met | Phe | Val | Phe | His | Met |  |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |  |  |
| Lys | Pro | Trp | Ser | Gly | Ile | Ser | Val | Tyr | Met | Phe | Asn | Leu | Ala | Leu | Ala |  |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |  |
| Asp | Phe | Leu | Tyr | Val | Leu | Thr | Leu | Pro | Ala | Leu | Ile | Phe | Tyr | Tyr | Phe |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |
| Asn | Lys | Thr | Asp | Trp | Ile | Phe | Gly | Asp | Ala | Met | Cys | Lys | Leu | Gln | Arg |  |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |  |
| Phe | Ile | Phe | His | Val | Asn | Leu | Tyr | Gly | Ser | Ile | Leu | Phe | Leu | Thr | Cys |  |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |  |
| Ile | Ser | Ala | His | Arg | Tyr | Ser | Gly | Val | Val | Tyr | Pro | Leu | Lys | Ser | Leu |  |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |  |
| Gly | Arg | Leu | Lys | Lys | Lys | Asn | Ala | Ile | Cys | Ile | Ser | Val | Leu | Val | Trp |  |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |  |
| Leu | Ile | Val | Val | Val | Ala | Ile | Ser | Pro | Ile | Leu | Phe | Tyr | Ser | Gly | Thr |  |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |  |
| Gly | Val | Arg | Lys | Asn | Lys | Thr | Ile | Thr | Cys | Tyr | Asp | Thr | Thr | Ser | Asp |  |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |  |
| Glu | Tyr | Leu | Arg | Ser | Tyr | Phe | Ile | Tyr | Ser | Met | Cys | Thr | Thr | Val | Ala |  |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |  |
| Met | Phe | Cys | Val | Pro | Leu | Val | Leu | Ile | Leu | Gly | Cys | Tyr | Gly | Leu | Ile |  |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |  |
| Val | Arg | Ala | Leu | Ile | Tyr | Lys | Asp | Leu | Asp | Asn | Ser | Pro | Leu | Arg | Arg |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |  |
| Lys | Ser | Ile | Tyr | Leu | Val | Ile | Ile | Val | Leu | Thr | Val | Phe | Ala | Val | Ser |  |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |  |
| Tyr | Ile | Pro | Phe | His | Val | Met | Lys | Thr | Met | Asn | Leu | Arg | Ala | Arg | Leu |  |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |  |
| Asp | Phe | Gln | Thr | Pro | Ala | Met | Cys | Ala | Phe | Asn | Asp | Arg | Val | Tyr | Ala |  |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |  |
| Thr | Tyr | Gln | Val | Thr | Arg | Gly | Leu | Ala | Ser | Leu | Asn | Ser | Cys | Val | Asp |  |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |  |
| Pro | Ile | Leu | Tyr | Phe | Leu | Ala | Gly | Asp | Thr | Phe | Arg | Arg | Arg | Leu | Ser |  |  |  |

[illegible]

```
<210> 60
<211> 373
<212> PRT
<213> Rattus norvegicus
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|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 60 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Thr | Glu | Val | Pro | Trp | Ser | Ala | Val | Pro | Asn | Gly | Thr | Asp | Ala | Ala |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe      | Leu | Ala | Gly | Leu | Gly | Ser | Leu | Trp | Gly | Asn | Ser | Thr | Ile | Ala | Ser |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr      | Ala | Ala | Val | Ser | Ser | Ser | Phe | Arg | Cys | Ala | Leu | Ile | Lys | Thr | Gly |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe      | Gln | Phe | Tyr | Tyr | Leu | Pro | Ala | Val | Tyr | Ile | Leu | Val | Phe | Ile | Ile |
| 50       |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly      | Phe | Leu | Gly | Asn | Ser | Val | Ala | Ile | Trp | Met | Phe | Val | Phe | His | Met |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Lys      | Pro | Trp | Ser | Gly | Ile | Ser | Val | Tyr | Met | Phe | Asn | Leu | Ala | Leu | Ala |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp      | Phe | Leu | Tyr | Val | Leu | Thr | Leu | Pro | Ala | Leu | Ile | Phe | Tyr | Tyr | Phe |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn      | Lys | Thr | Asp | Trp | Ile | Phe | Gly | Asp | Val | Met | Cys | Lys | Leu | Gln | Arg |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Phe      | Ile | Phe | His | Val | Asn | Leu | Tyr | Gly | Ser | Ile | Leu | Phe | Leu | Thr | Cys |
| 130      |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile      | Ser | Ala | His | Arg | Tyr | Ser | Gly | Val | Val | Tyr | Pro | Leu | Lys | Ser | Leu |
| 145      |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly      | Arg | Leu | Lys | Lys | Lys | Asn | Ala | Ile | Tyr | Val | Ser | Val | Leu | Val | Trp |
|          |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu      | Ile | Val | Val | Val | Ala | Ile | Ser | Pro | Ile | Leu | Phe | Tyr | Ser | Gly | Thr |
|          |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly      | Ile | Arg | Lys | Asn | Lys | Thr | Val | Thr | Cys | Tyr | Asp | Ser | Thr | Ser | Asp |
|          |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |

Glu Tyr Leu Arg Ser Tyr Phe Ile Tyr Ser Met Cys Thr Thr Val Ala  
 210 215 220

Met Phe Cys Ile Pro Leu Val Leu Ile Leu Gly Cys Tyr Gly Leu Ile  
 225 230 235 240

Val Arg Ala Leu Ile Tyr Lys Asp Leu Asp Asn Ser Pro Leu Arg Arg  
 245 250 255

Lys Ser Ile Tyr Leu Val Ile Ile Val Leu Thr Val Phe Ala Val Ser  
 260 265 270

Tyr Ile Pro Phe His Val Met Lys Thr Met Asn Leu Arg Ala Arg Leu  
 275 280 285

Asp Phe Gln Thr Pro Glu Met Cys Asp Phe Asn Asp Arg Val Tyr Ala  
 290 295 300

Thr Tyr Gln Val Thr Arg Gly Leu Ala Ser Leu Asn Ser Cys Val Asp  
 305 310 315 320

Pro Ile Leu Tyr Phe Leu Ala Gly Asp Thr Phe Arg Arg Arg Leu Ser  
 325 330 335

Arg Ala Thr Arg Lys Ala Ser Arg Arg Ser Glu Ala Asn Leu Gln Ser  
 340 345 350

Lys Ser Glu Glu Met Thr Leu Asn Ile Leu Ser Glu Phe Lys Gln Asn  
 355 360 365

Gly Asp Thr Ser Leu  
 370

<210> 61  
 <211> 373  
 <212> PRT  
 <213> Bos taurus

<400> 61  
 Met Thr Glu Val Leu Trp Pro Ala Val Pro Asn Gly Thr Asp Thr Ala  
 1 5 10 15

Phe Leu Ala Asp Pro Gly Ser Pro Trp Gly Asn Ser Thr Val Thr Ser  
 20 25 30

Thr Ala Ala Val Ala Ser Pro Phe Lys Cys Ala Leu Thr Lys Thr Gly  
 35 40 45

Phe Gln Phe Tyr Tyr Leu Pro Ala Val Tyr Ile Leu Val Phe Ile Ile  
 50 55 60

Gly Phe Leu Gly Asn Ser Val Ala Ile Trp Met Phe Val Phe His Met  
 65 70 75 80

Lys Pro Trp Ser Gly Ile Ser Val Tyr Met Phe Asn Leu Ala Leu Ala  
 85 90 95



<211> 254

<212> PRT

<213> Homo sapiens

<400> 62

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
1 5 10 15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
20 25 30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
35 40 45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
50 55 60

Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
65 70 75 80

Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
85 90 95

Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
100 105 110

Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
115 120 125

Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
130 135 140

Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Val Leu  
145 150 155 160

Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
165 170 175

Arg Lys Arg Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
180 185 190

Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
195 200 205

Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
210 215 220

Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
225 230 235 240

Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
245 250

<210> 63

<211> 797

<212> PRT

<213> Homo sapiens

<400> 63

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Ser | Thr | Cys | Val | Ser | Ala | Ser | Leu | Pro | Arg | Ser | Tyr | Arg | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Asp | Thr | Val | Arg | Leu | Thr | Ser | Val | Val | Thr | Pro | Arg | Pro | Phe | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Gln | Thr | Arg | Gly | Ile | Ser | Ser | Leu | Pro | Arg | Ser | Tyr | Thr | Met | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Ala | Trp | Lys | Tyr | Asn | Gly | Asp | Ile | Glu | Asp | Ile | Lys | Arg | Thr | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asn | Asn | Val | Val | Ser | Thr | Pro | Ala | Pro | Ser | Pro | Asp | Ala | Ser | Gln | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Ser | Ser | Leu | Ser | Ser | Gln | Lys | Glu | Val | Ala | Ala | Thr | Glu | Glu | Asp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val | Thr | Arg | Leu | Pro | Ser | Pro | Thr | Ser | Pro | Phe | Ser | Ser | Leu | Ser | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Gln | Ala | Ala | Thr | Ser | Lys | Ala | Thr | Leu | Ser | Ser | Thr | Ser | Gly | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asp | Leu | Met | Ser | Glu | Ser | Gly | Glu | Gly | Glu | Ile | Ser | Pro | Gln | Arg | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Ser | Arg | Ser | Gln | Asp | Gln | Phe | Ser | Asp | Met | Arg | Ile | Ser | Ile | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gln | Thr | Pro | Gly | Lys | Ser | Leu | Asp | Phe | Gly | Phe | Thr | Ile | Lys | Trp | Asp |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Pro | Gly | Ile | Phe | Val | Ala | Ser | Val | Glu | Ala | Gly | Ser | Pro | Ala | Glu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Ser | Gln | Leu | Gln | Val | Asp | Asp | Glu | Ile | Ile | Ala | Ile | Asn | Asn | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Lys | Phe | Ser | Tyr | Asn | Asp | Ser | Lys | Glu | Trp | Glu | Glu | Ala | Met | Ala | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ala | Gln | Glu | Thr | Gly | His | Leu | Val | Met | Asp | Val | Arg | Arg | Tyr | Gly | Lys |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ala | Gly | Ser | Pro | Glu | Thr | Lys | Trp | Ile | Asp | Ala | Thr | Ser | Gly | Ile | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Asn | Ser | Glu | Lys | Ser | Ser | Asn | Leu | Ser | Val | Thr | Thr | Asp | Phe | Ser | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Leu | Gln | Ser | Ser | Asn | Ile | Glu | Ser | Lys | Glu | Ile | Asn | Gly | Ile | His |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |



Asp Glu Ser Asn Ala Phe Glu Ser Lys Ala Ser Glu Ser Ile Ser Leu  
 290 295 300  
 Lys Asn Leu Lys Arg Arg Ser Gln Phe Phe Glu Gln Gly Ser Ser Asp  
 305 310 315 320  
 Ser Val Val Pro Asp Leu Pro Val Pro Thr Ile Ser Ala Pro Ser Arg  
 325 330 335  
 Trp Val Trp Asp Gln Glu Glu Glu Arg Lys Arg Gln Glu Arg Trp Gln  
 340 345 350  
 Lys Glu Gln Asp Arg Leu Leu Gln Glu Lys Tyr Gln Arg Glu Gln Glu  
 355 360 365  
 Lys Leu Arg Glu Glu Trp Gln Arg Ala Lys Gln Glu Ala Glu Arg Glu  
 370 375 380  
 Asn Ser Lys Tyr Leu Asp Glu Glu Leu Met Val Leu Ser Ser Asn Ser  
 385 390 395 400  
 Met Ser Leu Thr Thr Arg Glu Pro Ser Leu Ala Thr Trp Glu Ala Thr  
 405 410 415  
 Trp Ser Glu Gly Ser Lys Ser Ser Asp Arg Glu Gly Thr Arg Ala Gly  
 420 425 430  
 Glu Glu Glu Arg Arg Gln Pro Gln Glu Glu Val Val His Glu Asp Gln  
 435 440 445  
 Gly Lys Lys Pro Gln Asp Gln Leu Val Ile Glu Arg Glu Arg Lys Trp  
 450 455 460  
 Glu Gln Gln Leu Gln Glu Glu Gln Glu Gln Lys Arg Leu Gln Ala Glu  
 465 470 475 480  
 Ala Glu Glu Gln Lys Arg Pro Ala Glu Glu Gln Lys Arg Gln Ala Glu  
 485 490 495  
 Ile Glu Arg Glu Thr Ser Val Arg Ile Tyr Gln Tyr Arg Arg Pro Val  
 500 505 510  
 Asp Ser Tyr Asp Ile Pro Lys Thr Glu Glu Ala Ser Ser Gly Phe Leu  
 515 520 525  
 Pro Gly Asp Arg Asn Lys Ser Arg Ser Thr Thr Glu Leu Asp Asp Tyr  
 530 535 540  
 Ser Thr Asn Lys Asn Gly Asn Asn Lys Tyr Leu Asp Gln Ile Gly Asn  
 545 550 555 560  
 Thr Thr Ser Ser Gln Arg Arg Ser Lys Lys Glu Gln Val Pro Ser Gly  
 565 570 575  
 Ala Glu Leu Glu Arg Gln Gln Ile Leu Gln Glu Met Arg Lys Arg Thr  
 580 585 590

Pro Leu His Asn Asp Asn Ser Trp Ile Arg Gln Arg Ser Ala Ser Val  
595 600 605

Asn Lys Glu Pro Val Ser Leu Pro Gly Ile Met Arg Arg Gly Glu Ser  
610 615 620

Leu Asp Asn Leu Asp Ser Pro Arg Ser Asn Ser Trp Arg Gln Pro Pro  
625 630 635 640

Trp Leu Asn Gln Pro Thr Gly Phe Tyr Ala Ser Ser Ser Val Gln Asp  
645 650 655

Phe Ser Arg Pro Pro Pro Gln Leu Val Ser Thr Ser Asn Arg Ala Tyr  
660 665 670

Met Arg Asn Pro Ser Ser Ser Val Pro Pro Pro Ser Ala Gly Ser Val  
675 680 685

Lys Thr Ser Thr Thr Gly Val Ala Thr Thr Gln Ser Pro Thr Pro Arg  
690 695 700

Ser His Ser Pro Ser Ala Ser Gln Ser Gly Ser Gln Leu Arg Asn Arg  
705 710 715 720

Ser Val Ser Gly Lys Arg Ile Cys Ser Tyr Cys Asn Asn Ile Leu Gly  
725 730 735

Lys Gly Ala Ala Met Ile Ile Glu Ser Leu Gly Leu Cys Tyr His Leu  
740 745 750

His Cys Phe Lys Cys Val Ala Cys Glu Cys Asp Leu Gly Gly Ser Ser  
755 760 765

Ser Gly Ala Glu Val Arg Ile Arg Asn His Gln Leu Tyr Cys Asn Asp  
770 775 780

Cys Tyr Leu Arg Phe Lys Ser Gly Arg Pro Thr Ala Met  
785 790 795

<210> 64

<211> 797

<212> PRT

<213> Homo sapiens

<400> 64

Met Glu Ser Thr Arg Val Ser Ala Ser Leu Pro Arg Ser Tyr Arg Lys  
1 5 10 15

Thr Asp Thr Val Arg Leu Thr Ser Val Val Thr Pro Arg Pro Phe Gly  
20 25 30

Ser Gln Thr Arg Gly Ile Ser Ser Leu Pro Arg Ser Tyr Thr Met Asp  
35 40 45

Asp Ala Trp Lys Tyr Asn Gly Asp Val Glu Asp Ile Lys Arg Thr Pro  
50 55 60

Asn Asn Val Val Ser Thr Pro Ala Pro Ser Pro Asp Ala Ser Gln Leu  
 65 70 75 80  
 Ala Ser Ser Leu Ser Ser Gln Lys Glu Val Ala Ala Thr Glu Glu Asp  
 85 90 95  
 Val Thr Arg Leu Pro Ser Pro Thr Ser Pro Phe Ser Ser Leu Ser Gln  
 100 105 110  
 Asp Gln Ala Ala Thr Ser Lys Ala Thr Leu Ser Ser Thr Ser Gly Leu  
 115 120 125  
 Asp Leu Met Ser Glu Ser Gly Glu Gly Glu Ile Ser Pro Gln Arg Glu  
 130 135 140  
 Val Ser Arg Ser Gln Asp Gln Phe Ser Asp Met Arg Ile Ser Ile Asn  
 145 150 155 160  
 Gln Thr Pro Gly Lys Ser Leu Asp Phe Gly Phe Thr Ile Lys Trp Asp  
 165 170 175  
 Ile Pro Gly Ile Phe Val Ala Ser Val Glu Ala Gly Ser Pro Ala Glu  
 180 185 190  
 Phe Ser Gln Leu Gln Val Asp Asp Glu Ile Ile Ala Ile Asn Asn Thr  
 195 200 205  
 Lys Phe Ser Tyr Asn Asp Ser Lys Glu Trp Glu Glu Ala Met Ala Lys  
 210 215 220  
 Ala Gln Glu Thr Gly His Leu Val Met Asp Val Arg Arg Tyr Gly Lys  
 225 230 235 240  
 Ala Gly Ser Pro Glu Thr Lys Trp Ile Asp Ala Thr Ser Gly Ile Tyr  
 245 250 255  
 Asn Ser Glu Lys Ser Ser Asn Leu Ser Val Thr Thr Asp Phe Ser Glu  
 260 265 270  
 Ser Leu Gln Ser Ser Asn Ile Glu Ser Lys Glu Ile Asn Gly Ile His  
 275 280 285  
 Asp Glu Ser Asn Ala Phe Glu Ser Lys Ala Ser Glu Ser Ile Ser Leu  
 290 295 300  
 Lys Asn Leu Lys Arg Arg Ser Gln Phe Phe Glu Gln Gly Ser Ser Asp  
 305 310 315 320  
 Ser Val Val Pro Asp Leu Pro Val Pro Thr Ile Ser Ala Pro Ser Arg  
 325 330 335  
 Trp Val Trp Asp Gln Glu Glu Glu Arg Lys Arg Gln Glu Arg Trp Gln  
 340 345 350  
 Lys Glu Gln Asp Arg Leu Leu Gln Glu Lys Tyr Gln Arg Glu Gln Glu  
 355 360 365

84

Met Arg Asn Pro Ser Ser Ser Val Pro Pro Pro Ser Ala Gly Ser Val  
675 680 685

Lys Thr Ser Thr Thr Gly Val Ala Thr Thr Gln Ser Pro Thr Pro Arg  
690 695 700

Ser His Ser Pro Ser Ala Ser Gln Ser Gly Ser Gln Leu Arg Asn Arg  
705 710 715 720

Ser Val Ser Gly Lys Arg Ile Cys Ser Tyr Cys Asn Asn Ile Leu Gly  
725 730 735

Lys Gly Ala Ala Met Ile Ile Glu Ser Leu Gly Leu Cys Tyr His Leu  
740 745 750

His Cys Phe Lys Cys Val Ala Cys Glu Cys Asp Leu Gly Gly Ser Ser  
755 760 765

Ser Gly Ala Glu Val Arg Ile Arg Asn His Gln Leu Tyr Cys Asn Asp  
770 775 780

Cys Tyr Leu Arg Phe Lys Ser Gly Arg Pro Thr Ala Met  
785 790 795

<210> 65

<211> 784

<212> PRT

<213> Homo sapiens

<400> 65

Met Glu Ser Thr Cys Val Ser Ala Ser Leu Pro Arg Ser Tyr Arg Lys  
1 5 10 15

Thr Asp Thr Val Arg Leu Thr Ser Val Val Thr Pro Arg Pro Phe Gly  
20 25 30

Ser Gln Thr Arg Gly Ile Ser Ser Leu Pro Arg Ser Tyr Thr Met Asp  
35 40 45

Asp Ala Trp Lys Tyr Asn Gly Asp Ile Glu Asp Ile Lys Arg Thr Pro  
50 55 60

Asn Asn Val Val Ser Thr Pro Ala Pro Ser Pro Asp Ala Ser Gln Leu  
65 70 75 80

Ala Ser Ser Leu Ser Ser Gln Lys Glu Val Ala Ala Thr Glu Glu Asp  
85 90 95

Val Thr Arg Leu Pro Ser Pro Thr Ser Pro Phe Ser Ser Leu Ser Gln  
100 105 110

Asp Gln Ala Ala Thr Ser Lys Ala Thr Leu Ser Ser Thr Ser Gly Leu  
115 120 125

Asp Leu Met Ser Glu Ser Gly Glu Gly Glu Ile Ser Pro Gln Arg Glu

| 130                                                                                | 135 | 140 |
|------------------------------------------------------------------------------------|-----|-----|
| Val Ser Arg Ser Gln Asp Gln Phe Ser Asp Met Arg Ile Ser Ile Asn<br>145 150 155 160 |     |     |
| Gln Thr Pro Gly Lys Ser Leu Asp Phe Gly Phe Thr Ile Lys Trp Asp<br>165 170 175     |     |     |
| Ile Pro Gly Ile Phe Val Ala Ser Val Glu Ala Gly Ser Pro Ala Glu<br>180 185 190     |     |     |
| Phe Ser Gln Leu Gln Val Asp Asp Glu Ile Ile Ala Ile Asn Asn Thr<br>195 200 205     |     |     |
| Lys Phe Ser Tyr Asn Asp Ser Lys Glu Trp Glu Glu Ala Met Ala Lys<br>210 215 220     |     |     |
| Ala Gln Glu Thr Gly His Leu Val Met Asp Val Arg Arg Tyr Gly Lys<br>225 230 235 240 |     |     |
| Ala Gly Ser Pro Glu Thr Lys Trp Ile Asp Ala Thr Ser Gly Ile Tyr<br>245 250 255     |     |     |
| Asn Ser Glu Lys Ser Ser Asn Leu Ser Val Thr Thr Asp Phe Ser Glu<br>260 265 270     |     |     |
| Ser Leu Gln Ser Ser Asn Ile Glu Ser Lys Glu Ile Asn Gly Ile His<br>275 280 285     |     |     |
| Asp Glu Ser Asn Ala Phe Glu Ser Lys Ala Ser Glu Ser Ile Ser Leu<br>290 295 300     |     |     |
| Lys Asn Leu Lys Arg Arg Ser Gln Phe Phe Glu Gln Gly Ser Ser Asp<br>305 310 315 320 |     |     |
| Ser Val Val Pro Asp Leu Pro Val Pro Thr Ile Ser Ala Pro Ser Arg<br>325 330 335     |     |     |
| Trp Val Trp Asp Gln Glu Glu Glu Arg Lys Arg Gln Glu Arg Trp Gln<br>340 345 350     |     |     |
| Lys Glu Gln Asp Arg Leu Leu Gln Glu Lys Tyr Gln Arg Glu Gln Glu<br>355 360 365     |     |     |
| Lys Leu Arg Glu Glu Trp Gln Arg Ala Lys Gln Glu Ala Glu Arg Glu<br>370 375 380     |     |     |
| Asn Ser Lys Tyr Leu Asp Glu Glu Leu Met Val Leu Ser Ser Asn Ser<br>385 390 395 400 |     |     |
| Met Ser Leu Thr Thr Arg Glu Pro Ser Leu Ala Thr Trp Glu Ala Thr<br>405 410 415     |     |     |
| Trp Ser Glu Gly Ser Lys Ser Ser Asp Arg Glu Gly Thr Arg Ala Gly<br>420 425 430     |     |     |
| Glu Glu Glu Arg Arg Gln Pro Gln Glu Glu Val Val His Glu Asp Gln                    |     |     |

| 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Lys | Lys | Pro | Gln | Asp | Gln | Leu | Val | Ile | Glu | Arg | Glu | Arg | Lys | Trp |
| 450 |     |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Glu | Gln | Gln | Leu | Gln | Glu | Glu | Gln | Glu | Gln | Lys | Arg | Leu | Gln | Ala | Glu |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Ala | Glu | Glu | Gln | Lys | Arg | Pro | Ala | Glu | Glu | Gln | Lys | Arg | Gln | Ala | Glu |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ile | Glu | Arg | Glu | Thr | Ser | Val | Arg | Ile | Tyr | Gln | Tyr | Arg | Arg | Pro | Val |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Asp | Ser | Tyr | Asp | Ile | Pro | Lys | Thr | Glu | Glu | Ala | Ser | Ser | Gly | Phe | Leu |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Pro | Gly | Asp | Arg | Asn | Lys | Ser | Arg | Ser | Thr | Thr | Glu | Leu | Asp | Asp | Tyr |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Ser | Thr | Asn | Lys | Asn | Gly | Asn | Asn | Lys | Tyr | Leu | Asp | Gln | Ile | Gly | Asn |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Thr | Thr | Ser | Ser | Gln | Arg | Arg | Ser | Lys | Lys | Glu | Gln | Val | Pro | Ser | Gly |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Ala | Glu | Leu | Glu | Arg | Gln | Gln | Ile | Leu | Gln | Glu | Met | Arg | Lys | Arg | Thr |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Pro | Leu | His | Asn | Asp | Asn | Ser | Trp | Ile | Arg | Gln | Arg | Ser | Ala | Ser | Val |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Asn | Lys | Glu | Pro | Val | Ser | Leu | Pro | Gly | Ile | Met | Arg | Arg | Gly | Glu | Ser |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Leu | Asp | Asn | Leu | Asp | Ser | Pro | Arg | Ser | Asn | Ser | Trp | Arg | Gln | Pro | Pro |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Trp | Leu | Asn | Gln | Pro | Thr | Gly | Phe | Tyr | Ala | Ser | Ser | Ser | Val | Gln | Asp |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Phe | Ser | Arg | Pro | Pro | Pro | Gln | Leu | Val | Ser | Thr | Ser | Asn | Arg | Ala | Tyr |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Met | Arg | Asn | Pro | Ser | Ser | Ser | Val | Pro | Pro | Pro | Ser | Ala | Gly | Ser | Val |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Lys | Thr | Ser | Thr | Thr | Gly | Val | Ala | Thr | Thr | Gln | Ser | Pro | Thr | Pro | Arg |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |
| Ser | His | Ser | Pro | Ser | Ala | Ser | Gln | Ser | Gly | Ser | Gln | Leu | Arg | Asn | Ser |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Val | Leu | Pro | Val | Ser | Val | Thr | Ser | Glu | Ala | Leu | Pro | Gln | Glu | Leu | Lys |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |
| Ser | Gly | Ser | Glu | Thr | Thr | Asn | Cys | Thr | Ala | Thr | Thr | Ala | Ile | Ser | Asp |

740 745 750  
 Ser Asn Leu Asp Gly Gln Pro Pro Cys Asp Val Ser Leu His Thr Lys  
 755 , 760 765  
 Ala Leu Leu Gln Ile Glu Glu Glu Val Val Ala Ala His Val Asp Leu  
 770 775 780

<210> 66  
 <211> 728  
 <212> PRT  
 <213> Homo sapiens

<400> 66  
 Met Glu Ser Thr Cys Val Ser Ala Ser Leu Pro Arg Ser Tyr Arg Lys  
 1 5 10 15  
 Thr Asp Thr Val Arg Leu Thr Ser Val Val Thr Pro Arg Pro Phe Gly  
 20 25 30  
 Ser Gln Thr Arg Gly Ile Ser Ser Leu Pro Arg Ser Tyr Thr Met Asp  
 35 40 45  
 Asp Ala Trp Lys Tyr Asn Gly Asp Ile Glu Asp Ile Lys Arg Thr Pro  
 50 55 60  
 Asn Asn Val Val Ser Thr Pro Ala Pro Ser Pro Asp Ala Ser Gln Leu  
 65 70 75 80  
 Ala Ser Ser Leu Ser Ser Gln Lys Glu Val Ala Ala Thr Glu Glu Asp  
 85 90 95  
 Val Thr Arg Leu Pro Ser Pro Thr Ser Pro Phe Ser Ser Leu Ser Gln  
 100 105 110  
 Asp Gln Ala Ala Thr Ser Lys Ala Thr Leu Ser Ser Thr Ser Gly Leu  
 115 120 125  
 Asp Leu Met Ser Glu Ser Gly Glu Gly Glu Ile Ser Pro Gln Arg Glu  
 130 135 140  
 Val Ser Arg Ser Gln Asp Gln Phe Ser Asp Met Arg Ile Ser Ile Asn  
 145 150 155 160  
 Gln Thr Pro Gly Lys Ser Leu Asp Phe Gly Phe Thr Ile Lys Trp Asp  
 165 170 175  
 Ile Pro Gly Ile Phe Val Ala Ser Val Glu Ala Gly Ser Pro Ala Glu  
 180 185 190  
 Phe Ser Gln Leu Gln Val Asp Asp Glu Ile Ile Ala Ile Asn Asn Thr  
 195 200 205



SECRET





SECRET

Phe Ser Arg Pro Pro Pro Gln Leu Val Ser Thr Ser Asn Arg Ala Tyr  
660 665 670

Met Arg Asn Pro Ser Ser Ser Val Pro Pro Pro Ser Ala Gly Ser Val  
675 680 685

Lys Thr Ser Thr Thr Gly Val Ala Thr Thr Gln Ser Pro Thr Pro Arg  
690 695 700

Ser His Ser Pro Ser Ala Ser Gln Ser Gly Ser Gln Leu Arg Asn Ser  
705 710 715 720

Val Leu Pro Val Ser Val Thr Ser Glu Ala Leu Pro Gln Glu Leu Lys  
725 730 735

Ser Gly Ser Glu Thr Thr Asn Cys Thr Ala Thr Thr Ala Ile Ser Asp  
740 745 750

Ser Asn Leu Asp Gly Gln Pro Pro Cys Asp Val Ser Leu His Thr Lys  
755 760 765

Ala Leu Leu Gln Ile Glu Glu Glu Val Val Ala Ala His Val Asp Leu  
770 775 780

<210> 68  
<211> 71  
<212> PRT  
<213> Homo sapiens

<400> 68  
Leu Gly Phe Ser Leu Val Gly Gly Lys Asp Ser Gly Asp Gly Gly Val  
1 5 10 15

Val Val Ser Ser Val Val Pro Gly Ser Pro Ala Ala Lys Ala Gly Leu  
20 25 30

Lys Pro Gly Asp Val Ile Leu Glu Val Asn Gly Thr Ser Val Glu Gly  
35 40 45

Leu Thr His Leu Glu Ala Val Asp Leu Leu Lys Glu Ala Gly Gly Lys  
50 55 60

Val Thr Leu Thr Val Leu Arg  
65 70

<210> 69  
<211> 561  
<212> PRT  
<213> Mus musculus

<400> 69

Met Ala Val Leu Leu Ala Ala Val Leu Ala Ser Ser Leu Tyr Leu Gln  
1 5 10 15

Val Ala Ala Asp Phe Asp Gly Arg Trp Pro Arg Gln Ile Val Ser Ser  
20 25 30

Ile Gly Leu Cys Arg Tyr Gly Gly Arg Ile Asp Cys Cys Trp Gly Trp  
35 40 45

Ala Arg Gln Ser Trp Gly Gln Cys Gln Pro Val Cys Gln Pro Gln Cys  
50 55 60

Lys His Gly Glu Cys Val Gly Pro Asn Lys Cys Lys Cys His Pro Gly  
65 70 75 80

Phe Ala Gly Lys Thr Cys Asn Gln Asp Leu Asn Glu Cys Gly Leu Lys  
85 90 95

Pro Arg Pro Cys Lys His Arg Cys Met Asn Thr Phe Gly Ser Tyr Lys  
100 105 110

Cys Tyr Cys Leu Asn Gly Tyr Met Leu Leu Pro Asp Gly Ser Cys Ser  
115 120 125

Ser Ala Leu Ser Cys Ser Met Ala Asn Cys Gln Tyr Gly Cys Asp Val  
130 135 140

Val Lys Gly Gln Val Arg Cys Gln Cys Pro Ser Pro Gly Leu Gln Leu  
145 150 155 160

Ala Pro Asp Gly Arg Thr Cys Val Asp Ile Asp Glu Cys Ala Thr Gly  
165 170 175

Arg Val Ser Cys Pro Arg Phe Arg Gln Cys Val Asn Thr Phe Gly Ser  
180 185 190

Tyr Ile Cys Lys Cys His Thr Gly Phe Asp Leu Met Tyr Ile Gly Gly  
195 200 205

Lys Tyr Gln Cys His Asp Ile Asp Glu Cys Ser Leu Gly Gln His Gln  
210 215 220

Cys Ser Ser Tyr Ala Arg Cys Tyr Asn Ile His Gly Ser Tyr Lys Cys  
225 230 235 240

Gln Cys Arg Asp Gly Tyr Glu Gly Asp Gly Leu Asn Cys Val Tyr Ile  
245 250 255

Pro Lys Val Met Ile Glu Pro Ser Gly Pro Ile His Met Pro Glu Arg  
260 265 270

Asn Gly Thr Ile Ser Lys Gly Asp Gly Gly His Ala Asn Arg Ile Pro  
275 280 285

Asp Ala Gly Ser Thr Arg Trp Pro Leu Lys Thr Pro Tyr Ile Pro Pro  
290 295 300

Val Ile Thr Asn Arg Pro Thr Ser Lys Pro Thr Thr Arg Pro Thr Pro  
305 310 315 320

Asn Pro Thr Pro Gln Pro Thr Pro Pro Pro Pro Pro Pro Leu Pro Thr  
325 330 335

Glu Pro Arg Thr Thr Pro Leu Pro Pro Thr Pro Glu Arg Pro Ser Thr  
340 345 350

Arg Pro Thr Thr Ile Ala Pro Ala Thr Ser Thr Thr Thr Arg Val Ile  
355 360 365

Thr Val Asp Asn Arg Ile Gln Thr Asp Pro Gln Lys Pro Arg Gly Asp  
370 375 380

Val Phe Ile Pro Arg Gln Pro Thr Asn Asp Leu Phe Glu Ile Phe Glu  
385 390 395 400

Ile Glu Arg Gly Val Ser Ala Asp Glu Glu Val Lys Asp Asp Pro Gly  
405 410 415

Ile Leu Ile His Ser Cys Asn Phe Asp His Gly Leu Cys Gly Trp Ile  
420 425 430

Arg Glu Lys Asp Ser Asp Leu His Trp Glu Thr Ala Arg Asp Pro Ala  
435 440 445

Gly Gly Gln Tyr Leu Thr Val Ser Ala Ala Lys Ala Pro Gly Gly Lys  
450 455 460

Ala Ala Arg Leu Val Leu Arg Leu Gly His Leu Met His Ser Gly Asp  
465 470 475 480

Leu Cys Leu Ser Phe Arg His Lys Val Thr Gly Leu His Ser Gly Thr  
485 490 495

Leu Gln Val Phe Val Arg Lys His Gly Thr His Gly Ala Ala Leu Trp  
500 505 510

Gly Arg Asn Gly Gly His Gly Trp Arg Gln Thr Gln Ile Thr Leu Arg  
515 520 525

Gly Ala Asp Val Lys Ser Val Ile Phe Lys Gly Glu Lys Arg Arg Gly  
530 535 540

His Thr Gly Glu Ile Gly Leu Asp Asp Val Ser Leu Lys Arg Gly Arg  
545 550 555 560

Cys

<210> 70

<211> 578

<212> PRT

<213> Mus musculus

300 360 420 480 540 600 660 720 780 840 900 960

96



Pro Asp Ala Gly Ser Thr Arg Trp Pro Leu Lys Thr Pro Tyr Ile Pro  
305 310 315 320

Pro Val Ile Thr Asn Arg Pro Thr Ser Lys Pro Thr Thr Arg Pro Thr  
325 330 335

Pro Asn Pro Thr Pro Gln Pro Thr Pro Pro Pro Pro Pro Pro Leu Pro  
340 345 350

Thr Glu Pro Arg Thr Thr Pro Leu Pro Pro Thr Pro Glu Arg Pro Ser  
355 360 365

Thr Arg Pro Thr Thr Ile Ala Pro Ala Thr Ser Thr Thr Thr Arg Val  
370 375 380

Ile Thr Val Asp Asn Arg Ile Gln Thr Asp Pro Gln Lys Pro Arg Gly  
385 390 395 400

Asp Val Phe Ile Pro Arg Gln Pro Thr Asn Asp Leu Phe Glu Ile Phe  
405 410 415

Glu Ile Glu Arg Gly Val Ser Ala Asp Glu Glu Val Lys Asp Asp Pro  
420 425 430

Gly Ile Leu Ile His Ser Cys Asn Phe Asp His Gly Leu Cys Gly Trp  
435 440 445

Ile Arg Glu Lys Asp Ser Asp Leu His Trp Glu Thr Ala Arg Asp Pro  
450 455 460

Ala Gly Gly Gln Tyr Leu Thr Val Ser Ala Ala Lys Ala Pro Gly Gly  
465 470 475 480

Lys Ala Ala Arg Leu Val Leu Arg Leu Gly His Leu Met His Ser Gly  
485 490 495

Asp Leu Cys Leu Ser Phe Arg His Lys Val Thr Gly Leu His Ser Gly  
500 505 510

Thr Leu Gln Val Phe Val Arg Lys His Gly Thr His Gly Ala Ala Leu  
515 520 525

Trp Gly Arg Asn Gly Gly His Gly Trp Arg Gln Thr Gln Ile Thr Leu  
530 535 540

Arg Gly Ala Asp Val Lys Ser Val Ile Phe Lys Gly Glu Lys Arg Arg  
545 550 555 560

Gly His Thr Gly Glu Ile Gly Leu Asp Asp Val Ser Leu Lys Arg Gly  
565 570 575

Arg Cys

**Figure 6**

Figure 6 displays two histograms comparing the distribution of the number of nodes per cluster for two different network types. The x-axis represents the number of nodes per cluster, ranging from 0 to 10. The y-axis represents frequency, ranging from 0 to 10.

The left histogram shows the distribution for a network where nodes are connected to their neighbors by edges. The distribution is highly skewed towards zero, indicating that most clusters contain only one or two nodes.

The right histogram shows the distribution for a network where nodes are connected to their neighbors by edges and also have self-loops. This distribution is more spread out than the first, with a peak around 2-3 nodes per cluster.

Met Ala Val Leu Leu Ala Ala Val Leu Ala Ser Ser Leu Tyr Leu Gln  
1 5 10 15

Ile Gly Leu Cys Arg Tyr Gly Gly Arg Ile Asp Cys Cys Trp Gly Trp  
35 40 45

Lys His Gly Glu Cys Val Gly Pro Asn Lys Cys Lys Cys His Pro Gly  
65 70 75 80

Leu Asp Gln Gly Ser Glu Gln Pro Leu Phe Gln Pro Pro Asp His Gln  
100 105 110

Arg Pro Cys Lys His Arg Cys Met Asn Thr Phe Gly Ser Tyr Lys Cys  
130 135 140

Ala Leu Ser Cys Ser Met Ala Asn Cys Gln Tyr Gly Cys Asp Val Val  
165 170 175

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Asp | Gly | Arg | Thr | Cys | Val | Asp | Ile | Asp | Glu | Cys | Ala | Thr | Gly | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |

Ile Cys Lys Cys His Thr Gly Phe Asp Leu Met Tyr Ile Gly Gly Lys  
225 230 235 240

Ser Ser Tyr Ala Arg Cys Tyr Asn Ile His Gly Ser Tyr Lys Cys Gln  
260 265 270

Cys Arg Asp Gly Tyr Glu Gly Asp Gly Leu Asn Cys Val Tyr Ile Pro



580

585

590

<210> 72

<211> 609

<212> PRT

<213> Mus musculus

<400> 72

```

Met Ala Val Leu Leu Ala Ala Val Leu Ala Ser Ser Leu Tyr Leu Gln
 1             5             10             15

Val Ala Ala Asp Phe Asp Gly Arg Trp Pro Arg Gln Ile Val Ser Ser
      20             25             30

Ile Gly Leu Cys Arg Tyr Gly Gly Arg Ile Asp Cys Cys Trp Gly Trp
      35             40             45

Ala Arg Gln Ser Trp Gly Gln Cys Gln Pro Phe Tyr Val Leu Arg Gln
      50             55             60

Arg Leu Ala Arg Ile Arg Cys Gln Leu Lys Ala Val Cys Gln Pro Gln
      65             70             75             80

Cys Lys His Gly Glu Cys Val Gly Pro Asn Lys Cys Lys Cys His Pro
      85             90             95

Gly Phe Ala Gly Lys Thr Cys Asn Gln Asp Glu Ser Phe His Pro Thr
      100             105             110

Pro Leu Asp Gln Gly Ser Glu Gln Pro Leu Phe Gln Pro Pro Asp His
      115             120             125

Gln Ala Thr Asn Val Pro Ser Arg Asp Leu Asn Glu Cys Gly Leu Lys
      130             135             140

Pro Arg Pro Cys Lys His Arg Cys Met Asn Thr Phe Gly Ser Tyr Lys
      145             150             155             160

Cys Tyr Cys Leu Asn Gly Tyr Met Leu Leu Pro Asp Gly Ser Cys Ser
      165             170             175

Ser Ala Leu Ser Cys Ser Met Ala Asn Cys Gln Tyr Gly Cys Asp Val
      180             185             190

Val Lys Gly Gln Val Arg Cys Gln Cys Pro Ser Pro Gly Leu Gln Leu
      195             200             205

Ala Pro Asp Gly Arg Thr Cys Val Asp Ile Asp Glu Cys Ala Thr Gly
      210             215             220

Arg Val Ser Cys Pro Arg Phe Arg Gln Cys Val Asn Thr Phe Gly Ser
      225             230             235             240

```

Tyr Ile Cys Lys Cys His Thr Gly Phe Asp Leu Met Tyr Ile Gly Gly  
 245 250 255  
 Lys Tyr Gln Cys His Asp Ile Asp Glu Cys Ser Leu Gly Gln His Gln  
 260 265 270  
 Cys Ser Ser Tyr Ala Arg Cys Tyr Asn Ile His Gly Ser Tyr Lys Cys  
 275 280 285  
 Gln Cys Arg Asp Gly Tyr Glu Gly Asp Gly Leu Asn Cys Val Tyr Ile  
 290 295 300  
 Pro Lys Val Met Ile Glu Pro Ser Gly Pro Ile His Met Pro Glu Arg  
 305 310 315 320  
 Asn Gly Thr Ile Ser Lys Gly Asp Gly Gly His Ala Asn Arg Ile Pro  
 325 330 335  
 Asp Ala Gly Ser Thr Arg Trp Pro Leu Lys Thr Pro Tyr Ile Pro Pro  
 340 345 350  
 Val Ile Thr Asn Arg Pro Thr Ser Lys Pro Thr Thr Arg Pro Thr Pro  
 355 360 365  
 Asn Pro Thr Pro Gln Pro Thr Pro Pro Pro Pro Pro Pro Leu Pro Thr  
 370 375 380  
 Glu Pro Arg Thr Thr Pro Leu Pro Pro Thr Pro Glu Arg Pro Ser Thr  
 385 390 395 400  
 Arg Pro Thr Thr Ile Ala Pro Ala Thr Ser Thr Thr Thr Arg Val Ile  
 405 410 415  
 Thr Val Asp Asn Arg Ile Gln Thr Asp Pro Gln Lys Pro Arg Gly Asp  
 420 425 430  
 Val Phe Ile Pro Arg Gln Pro Thr Asn Asp Leu Phe Glu Ile Phe Glu  
 435 440 445  
 Ile Glu Arg Gly Val Ser Ala Asp Glu Glu Val Lys Asp Asp Pro Gly  
 450 455 460  
 Ile Leu Ile His Ser Cys Asn Phe Asp His Gly Leu Cys Gly Trp Ile  
 465 470 475 480  
 Arg Glu Lys Asp Ser Asp Leu His Trp Glu Thr Ala Arg Asp Pro Ala  
 485 490 495  
 Gly Gly Gln Tyr Leu Thr Val Ser Ala Ala Lys Ala Pro Gly Gly Lys  
 500 505 510  
 Ala Ala Arg Leu Val Leu Arg Leu Gly His Leu Met His Ser Gly Asp  
 515 520 525  
 Leu Cys Leu Ser Phe Arg His Lys Val Thr Gly Leu His Ser Gly Thr  
 530 535 540



Phe Gly Ser Tyr Tyr Cys Lys Cys His Ile Gly Phe Glu Leu Lys Tyr  
 195 200 205  
 Ile Gly Arg Arg Tyr Asp Cys Val Asp Ile Asn Glu Cys Ala Leu Asn  
 210 215 220  
 Thr His Pro Cys Ser Pro His Ala Asn Cys Leu Asn Thr Arg Gly Ser  
 225 230 235 240  
 Phe Lys Cys Lys Cys Lys Gln Gly Tyr Arg Gly Asn Gly Leu Gln Cys  
 245 250 255  
 Ser Val Ile Pro Glu His Ser Val Lys Glu Ile Leu Thr Ala Pro Gly  
 260 265 270  
 Thr Ile Lys Asp Arg Ile Lys Lys Leu Leu Ala His Lys Arg Thr Met  
 275 280 285  
 Lys Lys Lys Val Lys Leu Lys Met Val Thr Pro Arg Pro Ala Ser Thr  
 290 295 300  
 Arg Val Pro Lys Val Asn Leu Pro Tyr Ser Ser Glu Glu Gly Val Ser  
 305 310 315 320  
 Arg Gly Arg Asn Tyr Asp Gly Glu Gln Lys Lys Lys Glu Glu Gly Lys  
 325 330 335  
 Arg Glu Arg Leu Glu Glu Glu Lys Gly Glu Lys Thr Leu Arg Asn Glu  
 340 345 350  
 Val Glu Gln Glu Arg Thr Leu Arg Gly Asp Val Phe Ser Pro Lys Val  
 355 360 365  
 Asn Glu Ala Glu Asp Leu Asp Leu Val Tyr Val Gln Arg Lys Glu Leu  
 370 375 380  
 Asn Ser Lys Leu Lys His Lys Asp Leu Asn Ile Ser Val Asp Cys Ser  
 385 390 395 400  
 Phe Asp Leu Gly Val Cys Asp Trp Lys Gln Asp Arg Glu Asp Asp Phe  
 405 410 415  
 Asp Trp His Pro Ala Asp Arg Asp Asn Asp Val Gly Tyr Tyr Met Ala  
 420 425 430  
 Val Pro Ala Leu Ala Gly His Lys Lys Asn Ile Gly Arg Leu Lys Leu  
 435 440 445  
 Leu Leu Pro Asn Leu Thr Pro Gln Ser Asn Phe Cys Leu Leu Phe Asp  
 450 455 460  
 Tyr Arg Leu Ala Gly Asp Lys Val Gly Lys Leu Arg Val Phe Val Lys  
 465 470 475 480  
 Asn Ser Asn Asn Ala Leu Ala Trp Glu Glu Thr Lys Asn Glu Asp Gly  
 485 490 495

Arg Trp Arg Thr Gly Lys Ile Gln Leu Tyr Gln Gly Ile Asp Thr Thr  
500 505 510

Lys Ser Val Ile Phe Glu Ala Glu Arg Gly Lys Gly Lys Thr Gly Glu  
515 520 525

Ile Ala Val Asp Gly Val Leu Leu Val Ser Gly Leu Cys Pro Asp Asp  
530 535 540

Phe Leu Ser Val Glu Gly  
545 550

<210> 74  
<211> 158  
<212> PRT  
<213> Homo sapiens

<400> 74  
Gly Asn Cys Asp Phe Glu Glu Gly Asn Thr Cys Gly Trp His Gln Asp  
1 5 10 15

Ser Asn Asp Asp Gly Pro Trp Glu Arg Val Ser Ser Ala Thr Arg Asn  
20 25 30

Asp Gly Pro Asn Arg Asp His Thr Thr Gly Asn Gly His Tyr Met Phe  
35 40 45

Phe Glu Thr Ser Ser Gly Lys Pro Gly Gln Thr Ala Arg Leu Leu Ser  
50 55 60

Pro Pro Leu Tyr Glu Asn Arg Ser Thr His Cys Leu Thr Phe Trp Tyr  
65 70 75 80

Tyr Met Tyr Gly Ser Gly Val Gly Thr Leu Asn Val Tyr Val Arg Val  
85 90 95

Asn Asn Gly Pro Gln Asp Thr Leu Leu Trp Ser Arg Ser Gly Thr Gln  
100 105 110

Gly Gly Gln Trp Leu Gln Ala Glu Val Ala Leu Ser Thr Ser Pro Gln  
115 120 125

Pro Phe Gln Val Val Phe Glu Gly Thr Arg Gly Gly Gly Pro Ser Gly  
130 135 140

Tyr Ile Ala Leu Asp Asp Ile Leu Leu Ser Asn Gly Pro Cys  
145 150 155

<210> 75  
<211> 159  
<212> PRT  
<213> Homo sapiens

<400> 75











Lys Arg Glu Thr Lys Met Arg Gly Met Met Ala Lys Gln Glu Gly Met  
 180 185 190  
 Glu Met Lys Leu Gln Val Thr Gln Arg Ser Leu Glu Glu Ser Gln Gly  
 195 200 205  
 Lys Ile Ala Gln Leu Glu Gly Lys Leu Val Ser Ile Glu Lys Glu Lys  
 210 215 220  
 Ile Asp Glu Lys Ser Glu Thr Glu Lys Leu Leu Glu Tyr Ile Glu Glu  
 225 230 235 240  
 Ile Ser Cys Ala Ser Asp Gln Val Glu Lys Tyr Lys Leu Asp Ile Ala  
 245 250 255  
 Gln Leu Glu Glu Asn Leu Lys Glu Lys Asn Asp Glu Ile Leu Ser Leu  
 260 265 270  
 Lys Gln Ser Leu Glu Asp Asn Ile Val Ile Leu Ser Lys Gln Val Glu  
 275 280 285  
 Asp Leu Asn Val Lys Cys Gln Leu Leu Glu Thr Glu Lys Glu Asp His  
 290 295 300  
 Val Asn Arg Asn Arg Glu His Asn Glu Asn Leu Asn Ala Glu Met Gln  
 305 310 315 320  
 Asn Leu Glu Gln Lys Phe Ile Leu Glu Gln Arg Glu His Glu Lys Leu  
 325 330 335  
 Gln Gln Lys Glu Leu Gln Ile Asp Ser Leu Leu Gln Gln Glu Lys Glu  
 340 345 350  
 Leu Ser Ser Ser Leu His Gln Lys Leu Cys Ser Phe Gln Glu Glu Met  
 355 360 365  
 Val Lys Glu Lys Asn Leu Phe Glu Glu Glu Leu Lys Gln Thr Leu Asp  
 370 375 380  
 Glu Leu Asp Lys Leu Gln Gln Lys Glu Glu Gln Ala Glu Arg Leu Val  
 385 390 395 400  
 Lys Gln Leu Glu Glu Glu Ala Lys Ser Arg Ala Glu Glu Leu Lys Leu  
 405 410 415  
 Leu Glu Glu Lys Leu Lys Gly Lys Glu Ala Glu Leu Glu Lys Ser Ser  
 420 425 430  
 Ala Ala His Thr Gln Ala Thr Leu Leu Leu Gln Glu Lys Tyr Asp Ser  
 435 440 445  
 Met Val Gln Ser Leu Glu Asp Val Thr Ala Gln Phe Glu Ser Tyr Lys  
 450 455 460  
 Ala Leu Thr Ala Ser Glu Ile Glu Asp Leu Lys Leu Glu Asn Ser Ser  
 465 470 475 480



Cys Ala Pro Ser Pro Gly Ala Tyr Asp Val Lys Thr Leu Glu Val Leu  
20 25 30

Lys Gly Pro Val Ser Phe Gln Lys Ser Gln Arg Phe Lys Gln Gln Lys  
35 40 45

Glu Ser Lys Gln Asn Leu Asn Val Asp Lys Asp Thr Thr Leu Pro Ala  
50 55 60

Ser Ala Arg Lys Val Lys Ser Ser Glu Ser Lys Lys Glu Ser Gln Lys  
65 70 75 80

Asn Asp Lys Asp Leu Lys Ile Leu Glu Lys Glu Ile Arg Val Leu Leu  
85 90 95

Gln Glu Arg Gly Ala Gln Asp Arg Arg Ile Gln Asp Leu Glu Thr Glu  
100 105 110

Leu Glu Lys Met Glu Ala Arg Leu Asn Ala Ala Leu Arg Glu Lys Thr  
115 120 125

Ser Leu Ser Ala Asn Asn Ala Thr Leu Glu Lys Gln Leu Ile Glu Leu  
130 135 140

Thr Arg Thr Asn Glu Leu Leu Lys Ser Lys Phe Ser Glu Asn Gly Asn  
145 150 155 160

Gln Lys Asn Leu Arg Ile Leu Ser Leu Glu Leu Met Lys Leu Arg Asn  
165 170 175

Lys Arg Glu Thr Lys Met Arg Gly Met Met Ala Lys Gln Glu Gly Met  
180 185 190

Glu Met Lys Leu Gln Val Thr Gln Arg Ser Leu Glu Glu Ser Gln Gly  
195 200 205

Lys Ile Ala Gln Leu Glu Gly Lys Leu Val Ser Ile Glu Lys Glu Lys  
210 215 220

Ile Asp Glu Lys Ser Glu Thr Glu Lys Leu Leu Glu Tyr Ile Glu Glu  
225 230 235 240

Ile Ser Cys Ala Ser Asp Gln Val Glu Lys Tyr Lys Leu Asp Ile Ala  
245 250 255

Gln Leu Glu Glu Asn Leu Lys Glu Lys Asn Asp Glu Ile Leu Ser Leu  
260 265 270

Lys Gln Ser Leu Glu Glu Asn Ile Val Ile Leu Ser Lys Gln Val Glu  
275 280 285

Asp Leu Asn Val Lys Cys Gln Leu Leu Glu Lys Glu Lys Glu Asp His  
290 295 300

Val Asn Arg Asn Arg Glu His Asn Glu Asn Leu Asn Ala Glu Met Gln  
305 310 315 320

Asn Leu Lys Gln Lys Phe Ile Leu Glu Gln Gln Glu His Glu Lys Leu  
325 330 335

Gln Gln Lys Glu Leu Gln Ile Asp Ser Leu Leu Gln Gln Glu Lys Glu  
340 345 350

Leu Ser Ser Ser Leu His Gln Lys Leu Cys Ser Phe Gln Glu Glu Met  
355 360 365

Val Lys Glu Lys Asn Leu Phe Glu Glu Glu Leu Lys Gln Thr Leu Asp  
370 375 380

Glu Leu Asp Lys Leu Gln Gln Lys Glu Glu Gln Ala Glu Arg Leu Val  
385 390 395 400

Lys Gln Leu Glu Glu Glu Ala Lys Ser Arg Ala Glu Glu Leu Lys Leu  
405 410 415

Leu Glu Glu Lys Leu Lys Gly Lys Glu Ala Glu Leu Glu Lys Ser Ser  
420 425 430

Ala Ala His Thr Gln Ala Thr Leu Leu Leu Gln Glu Lys Tyr Asp Ser  
435 440 445

Met Val Gln Ser Leu Glu Asp Val Thr Ala Gln Phe Glu Ser Tyr Lys  
450 455 460

Ala Leu Thr Ala Ser Glu Ile Glu Asp Leu Lys Leu Glu Asn Ser Ser  
465 470 475 480

Leu Gln Glu Lys Ala Ala Lys Ala Gly Lys Asn Ala Glu Asp Val Gln  
485 490 495

His Gln Ile Leu Ala Thr Glu Ser Ser Asn Gln Glu Tyr Val Arg Met  
500 505 510

Leu Leu Asp Leu Gln Thr Lys Ser Ala Leu Lys Glu Thr Glu Ile Lys  
515 520 525

Glu Ile Thr Val Ser Phe Leu Gln Lys Ile Thr Asp Leu Gln Asn Gln  
530 535 540

Leu Lys Gln Gln Glu Glu Asp Phe Arg Lys Gln Leu Glu Asp Glu Glu  
545 550 555 560

Gly Arg Lys Ala Glu Lys Glu Asn Thr Thr Ala Glu Leu Thr Glu Glu  
565 570 575

Ile Asn Lys Trp Arg Leu Leu Tyr Glu Glu Leu Tyr Asn Lys Thr Lys  
580 585 590

Pro Phe Gln Leu Gln Leu Asp Ala Phe Glu Val Glu Lys Gln Ala Leu  
595 600 605

Leu Asn Glu His Gly Ala Ala Gln Glu Gln Leu Asn Lys Ile Arg Asp  
610 615 620



Ser Tyr Ala Lys Leu Leu Gly His Gln Asn Leu Lys Gln Lys Ile Lys  
625 630 635 640

His Val Val Lys Leu Lys Asp Glu Asn Ser Gln Leu Lys Ser Glu Val  
645 650 655

Ser Lys Leu Arg Cys Gln Leu Ala Lys Lys Lys Gln Ser Glu Thr Lys  
660 665 670

Leu Gln Glu Glu Leu Asn Lys Val Leu Gly Ile Lys His Phe Asp Pro  
675 680 685

Ser Lys Ala Phe His His Glu Ser Lys Glu Asn Phe Ala Leu Lys Thr  
690 695 700

Pro Leu Lys Glu Gly Asn Thr Asn Cys Tyr Arg Ala Pro Met Glu Cys  
705 710 715 720

Gln Glu Ser Trp Lys  
725

<210> 80

<211> 724

<212> PRT

<213> Homo sapiens

<400> 80

Met Ser Phe Pro Lys Ala Pro Leu Lys Arg Phe Asn Asp Pro Ser Gly  
1 5 10 15

Cys Ala Pro Ser Pro Gly Ala Tyr Asp Val Lys Thr Leu Glu Val Leu  
20 25 30

Lys Gly Pro Val Ser Phe Gln Lys Ser Gln Arg Phe Lys Gln Gln Lys  
35 40 45

Glu Ser Lys Gln Asn Leu Asn Val Asp Lys Asp Thr Thr Leu Pro Ala  
50 55 60

Ser Ala Arg Lys Val Lys Ser Ser Glu Ser Lys Glu Ser Gln Lys Asn  
65 70 75 80

Asp Lys Asp Leu Lys Ile Leu Glu Lys Glu Ile Arg Val Leu Leu Gln  
85 90 95

Glu Arg Gly Ala Gln Asp Ser Arg Ile Gln Asp Leu Glu Thr Glu Leu  
100 105 110

Glu Lys Met Glu Ala Arg Leu Asn Ala Ala Leu Arg Glu Lys Thr Ser  
115 120 125

Leu Ser Ala Asn Asn Ala Thr Leu Glu Lys Gln Leu Ile Glu Leu Thr  
130 135 140

Arg Thr Asn Glu Leu Leu Lys Ser Lys Phe Ser Glu Asn Gly Asn Gln

|                                                                 |                                                 |     |     |     |     |     |
|-----------------------------------------------------------------|-------------------------------------------------|-----|-----|-----|-----|-----|
| 145                                                             |                                                 | 150 |     | 155 |     | 160 |
| Lys Asn Leu Arg                                                 | Ile Leu Ser Leu Glu Leu Met Lys Leu Arg Asn Lys |     |     |     |     |     |
|                                                                 | 165                                             |     | 170 |     | 175 |     |
| Arg Glu Thr Lys Met Arg Gly Met Met Ala Lys Gln Glu Gly Met Glu |                                                 |     |     |     |     |     |
|                                                                 | 180                                             |     | 185 |     | 190 |     |
| Met Lys Leu Gln Val Thr Gln Arg Ser Leu Glu Glu Ser Gln Gly Lys |                                                 |     |     |     |     |     |
|                                                                 | 195                                             |     | 200 |     | 205 |     |
| Ile Ala Gln Leu Glu Gly Lys Leu Val Ser Ile Glu Lys Glu Lys Ile |                                                 |     |     |     |     |     |
|                                                                 | 210                                             |     | 215 |     | 220 |     |
| Asp Glu Lys Ser Glu Thr Glu Lys Leu Leu Glu Tyr Ile Glu Glu Ile |                                                 |     |     |     |     |     |
|                                                                 | 225                                             |     | 230 |     | 235 | 240 |
| Ser Cys Ala Ser Asp Gln Val Glu Lys Tyr Lys Leu Asp Ile Ala Gln |                                                 |     |     |     |     |     |
|                                                                 | 245                                             |     | 250 |     | 255 |     |
| Leu Glu Glu Asn Leu Lys Glu Lys Asn Asp Glu Ile Leu Ser Leu Lys |                                                 |     |     |     |     |     |
|                                                                 | 260                                             |     | 265 |     | 270 |     |
| Gln Ser Leu Glu Glu Asn Ile Val Ile Leu Ser Lys Gln Val Glu Asp |                                                 |     |     |     |     |     |
|                                                                 | 275                                             |     | 280 |     | 285 |     |
| Leu Asn Val Lys Cys Gln Leu Leu Glu Lys Glu Lys Glu Asp His Val |                                                 |     |     |     |     |     |
|                                                                 | 290                                             |     | 295 |     | 300 |     |
| Asn Arg Asn Arg Glu His Asn Glu Asn Leu Asn Ala Glu Met Gln Asn |                                                 |     |     |     |     |     |
|                                                                 | 305                                             |     | 310 |     | 315 | 320 |
| Leu Lys Gln Lys Phe Ile Leu Glu Gln Gln Glu Arg Glu Lys Leu Gln |                                                 |     |     |     |     |     |
|                                                                 | 325                                             |     | 330 |     | 335 |     |
| Gln Lys Glu Leu Gln Ile Asp Ser Leu Leu Gln Gln Glu Lys Glu Leu |                                                 |     |     |     |     |     |
|                                                                 | 340                                             |     | 345 |     | 350 |     |
| Ser Ser Ser Leu His Gln Lys Leu Cys Ser Phe Gln Glu Glu Met Val |                                                 |     |     |     |     |     |
|                                                                 | 355                                             |     | 360 |     | 365 |     |
| Lys Glu Lys Asn Leu Phe Glu Glu Glu Leu Lys Gln Thr Leu Asp Glu |                                                 |     |     |     |     |     |
|                                                                 | 370                                             |     | 375 |     | 380 |     |
| Leu Asp Lys Leu Gln Gln Lys Glu Glu Gln Ala Glu Arg Leu Val Lys |                                                 |     |     |     |     |     |
|                                                                 | 385                                             |     | 390 |     | 395 | 400 |
| Gln Leu Glu Glu Glu Ala Lys Ser Arg Ala Glu Glu Leu Lys Leu Leu |                                                 |     |     |     |     |     |
|                                                                 | 405                                             |     | 410 |     | 415 |     |
| Glu Glu Lys Leu Lys Gly Lys Glu Ala Glu Leu Glu Lys Ser Ser Ala |                                                 |     |     |     |     |     |
|                                                                 | 420                                             |     | 425 |     | 430 |     |
| Ala His Thr Gln Ala Thr Leu Leu Leu Gln Glu Lys Tyr Asp Ser Met |                                                 |     |     |     |     |     |
|                                                                 | 435                                             |     | 440 |     | 445 |     |
| Val Gln Ser Leu Glu Asp Val Thr Ala Gln Phe Glu Ser Tyr Lys Ala |                                                 |     |     |     |     |     |

| 450                                                             | 455 | 460         |
|-----------------------------------------------------------------|-----|-------------|
| Leu Thr Ala Ser Glu Ile Glu Asp Leu Lys Leu Glu Asn Ser Ser Leu |     |             |
| 465                                                             | 470 | 475 480     |
| Gln Glu Lys Ala Ala Lys Ala Gly Lys Asn Ala Glu Asp Val Gln His |     |             |
|                                                                 | 485 | 490 495     |
| Gln Ile Leu Ala Thr Glu Ser Ser Asn Gln Glu Tyr Val Arg Met Leu |     |             |
|                                                                 | 500 | 505 510     |
| Leu Asp Leu Gln Thr Lys Ser Ala Leu Lys Glu Thr Glu Ile Lys Glu |     |             |
|                                                                 | 515 | 520 525     |
| Ile Thr Val Ser Phe Leu Gln Lys Ile Thr Asp Leu Gln Asn Gln Leu |     |             |
|                                                                 | 530 | 535 540     |
| Lys Gln Gln Glu Glu Asp Phe Arg Lys Gln Leu Glu Asp Glu Glu Gly |     |             |
|                                                                 | 545 | 550 555 560 |
| Arg Lys Ala Glu Lys Glu Asn Thr Thr Ala Glu Leu Thr Glu Glu Ile |     |             |
|                                                                 | 565 | 570 575     |
| Asn Lys Trp Arg Leu Leu Tyr Glu Glu Leu Tyr Asn Lys Thr Lys Pro |     |             |
|                                                                 | 580 | 585 590     |
| Phe Gln Leu Gln Leu Asp Ala Phe Glu Val Glu Lys Gln Ala Leu Leu |     |             |
|                                                                 | 595 | 600 605     |
| Asn Glu His Gly Ala Ala Gln Glu Gln Leu Asn Lys Ile Arg Asp Ser |     |             |
|                                                                 | 610 | 615 620     |
| Tyr Ala Lys Leu Leu Gly His Gln Asn Leu Lys Gln Lys Ile Lys His |     |             |
|                                                                 | 625 | 630 635 640 |
| Val Val Lys Leu Lys Asp Glu Asn Ser Gln Leu Lys Ser Glu Val Ser |     |             |
|                                                                 | 645 | 650 655     |
| Lys Leu Arg Cys Gln Leu Ala Lys Lys Lys Gln Ser Glu Thr Lys Leu |     |             |
|                                                                 | 660 | 665 670     |
| Gln Glu Glu Leu Asn Lys Val Leu Gly Ile Lys His Phe Asp Pro Ser |     |             |
|                                                                 | 675 | 680 685     |
| Lys Ala Phe His His Glu Ser Lys Glu Asn Phe Ala Leu Lys Thr Pro |     |             |
|                                                                 | 690 | 695 700     |
| Leu Lys Glu Gly Asn Thr Asn Cys Tyr Arg Ala Pro Met Glu Cys Gln |     |             |
|                                                                 | 705 | 710 715 720 |
| Glu Ser Trp Lys                                                 |     |             |

<210> 81  
 <211> 713  
 <212> PRT

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

|            |            |           |            |            |            |            |            |            |            |            |            |            |            |            |            |
|------------|------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Met<br>1   | Ser        | Phe       | Pro        | Lys<br>5   | Ala        | Pro        | Leu        | Lys        | Arg<br>10  | Phe        | Asn        | Asp        | Pro        | Ser        | Gly        |
| Cys        | Ala        | Pro       | Ser<br>20  | Pro        | Gly        | Ala        | Tyr        | Asp<br>25  | Val        | Lys        | Thr        | Ser        | Glu<br>30  | Ser        | Thr        |
| Lys        | Gly        | Pro<br>35 | Val        | Ser        | Phe        | Gln        | Lys<br>40  | Ser        | Gln        | Arg        | Phe        | Lys<br>45  | Asn        | Gln        | Arg        |
| Glu        | Ser<br>50  | Gln       | Gln        | Asn        | Leu        | Asn<br>55  | Ile        | Asp        | Lys        | Asp        | Thr<br>60  | Thr        | Leu        | Leu        | Ala        |
| Ser<br>65  | Ala        | Lys       | Lys        | Ala        | Lys<br>70  | Thr        | Leu        | Val        | Ser        | Lys<br>75  | Lys        | Glu        | Ser        | Gln        | Lys<br>80  |
| Asn        | Asp        | Lys       | Asp        | Val<br>85  | Lys        | Arg        | Leu        | Glu        | Lys<br>90  | Glu        | Ile        | His        | Val        | Leu<br>95  | Leu        |
| Gln        | Glu        | Arg       | Gly<br>100 | Thr        | Gln        | Asp        | Lys        | Arg<br>105 | Ile        | Gln        | Asp        | Met        | Glu<br>110 | Ser        | Glu        |
| Leu        | Glu<br>115 | Asn       | Thr        | Glu        | Ala        | Asn        | Leu<br>120 | Asn        | Ala        | Pro        | Val        | Thr<br>125 | Glu        | Lys        | Pro        |
| Ser<br>130 | Leu        | Ser       | Ala        | Asn        | Asn        | Ala<br>135 | Ser        | Leu        | Glu        | Lys        | Arg<br>140 | Leu        | Thr        | Glu        | Leu        |
| Thr<br>145 | Arg        | Ala       | Asn        | Glu        | Leu<br>150 | Leu        | Lys        | Ser        | Lys        | Phe<br>155 | Ser        | Glu        | Asp        | Ala        | His<br>160 |
| Gln        | Lys        | Asn       | Met        | Arg<br>165 | Thr        | Leu        | Ser        | Leu        | Glu<br>170 | Leu        | Met        | Lys        | Leu        | Arg<br>175 | Asn        |
| Lys        | Arg        | Glu       | Thr<br>180 | Lys        | Met        | Arg        | Ser        | Met<br>185 | Met        | Ala        | Lys        | Gln        | Glu<br>190 | Gly        | Met        |
| Glu        | Leu<br>195 | Lys       | Leu        | Gln        | Ala        | Thr        | Gln<br>200 | Lys        | Asp        | Leu        | Ile        | Glu<br>205 | Ser        | Lys        | Gly        |
| Lys<br>210 | Ile        | Val       | Gln        | Leu        | Glu        | Gly<br>215 | Lys        | Leu        | Val        | Ser        | Ile<br>220 | Glu        | Lys        | Glu        | Lys        |
| Ile<br>225 | Asp        | Glu       | Lys        | Ser        | Glu<br>230 | Thr        | Glu        | Lys        | Leu        | Leu<br>235 | Glu        | Tyr        | Ile        | Glu<br>240 | Glu        |
| Ile        | Ser        | Cys       | Ala        | Ser<br>245 | Asp        | Gln        | Val        | Glu        | Lys<br>250 | Tyr        | Lys        | Leu        | Asp        | Ile<br>255 | Ala        |
| Gln        | Leu        | Glu       | Glu<br>260 | Asp        | Leu        | Lys        | Glu        | Lys<br>265 | Asp        | Arg        | Glu        | Ile        | Leu<br>270 | Cys        | Leu        |
| Lys        | Gln<br>275 | Ser       | Leu        | Glu        | Glu        | Lys        | Val<br>280 | Ser        | Phe        | Ser        | Lys        | Gln<br>285 | Ile        | Glu        | Asp        |

Leu Thr Val Lys Cys Gln Leu Leu Glu Ala Glu Arg Asp Asp Leu Val  
 290 295 300  
 Ser Lys Asp Arg Glu Arg Ala Glu Ser Leu Ser Ala Glu Met Gln Val  
 305 310 315 320  
 Leu Thr Glu Lys Leu Leu Leu Glu Arg Gln Glu Tyr Glu Lys Leu Gln  
 325 330 335  
 Gln Asn Glu Leu Gln Ser Gln Ser Leu Leu Gln Gln Glu Lys Glu Leu  
 340 345 350  
 Ser Ala His Leu Gln Gln Gln Leu Cys Ser Phe Gln Glu Glu Met Thr  
 355 360 365  
 Ser Glu Arg Asn Val Phe Lys Glu Gln Leu Lys Leu Ala Leu Asp Glu  
 370 375 380  
 Leu Asp Ala Val Gln Gln Lys Lys Glu Gln Ser Glu Lys Leu Val Lys  
 385 390 395 400  
 Gln Leu Glu Glu Glu Thr Lys Ser Thr Ala Glu Gln Leu Arg Arg Leu  
 405 410 415  
 Asp Asp Leu Leu Arg Glu Lys Glu Ile Glu Leu Glu Lys Arg Thr Ala  
 420 425 430  
 Ala His Ala Gln Ala Thr Val Ile Ala Gln Glu Lys Tyr Ser Asp Thr  
 435 440 445  
 Ala Gln Thr Leu Arg Asp Val Thr Ala Gln Leu Glu Ser Tyr Lys Ser  
 450 455 460  
 Ser Thr Leu Lys Glu Ile Glu Asp Leu Lys Leu Glu Asn Leu Thr Leu  
 465 470 475 480  
 Gln Glu Lys Val Ala Met Ala Glu Lys Arg Val Glu Asp Val Gln Gln  
 485 490 495  
 Gln Ile Leu Thr Ala Glu Ser Thr Asn Gln Glu Tyr Ala Lys Val Val  
 500 505 510  
 Gln Asp Leu Gln Asn Ser Ser Thr Leu Lys Glu Ala Glu Ile Lys Glu  
 515 520 525  
 Ile Thr Ser Ser Tyr Leu Glu Lys Ile Thr Asp Leu Gln Asn Gln Leu  
 530 535 540  
 Arg Gln Gln Asn Glu Asp Phe Arg Lys Gln Leu Glu Glu Glu Gly Ala  
 545 550 555 560  
 Lys Met Thr Glu Lys Glu Thr Ala Val Thr Glu Leu Thr Met Glu Ile  
 565 570 575  
 Asn Lys Trp Arg Leu Leu Tyr Glu Glu Leu Phe Asp Lys Thr Lys Pro  
 580 585 590



Val Asp Phe Gln Lys Asn Pro Glu Lys Ser Arg Gln Glu Ile Asn Phe  
 145 150 155 160  
 Trp Val Glu Cys Gln Ser Gln Gly Lys Ile Lys Glu Leu Phe Ser Lys  
 165 170 175  
 Asp Ala Ile Asn Ala Glu Thr Val Leu Val Leu Val Asn Ala Val Tyr  
 180 185 190  
 Phe Lys Ala Lys Trp Glu Thr Tyr Phe Asp His Glu Asn Thr Val Asp  
 195 200 205  
 Ala Pro Phe Cys Leu Asn Ala Asn Glu Asn Lys Ser Val Lys Met Met  
 210 215 220  
 Thr Gln Lys Gly Leu Tyr Arg Ile Gly Phe Ile Glu Glu Val Lys Ala  
 225 230 235 240  
 Gln Ile Leu Glu Met Arg Tyr Thr Lys Gly Lys Leu Ser Met Phe Val  
 245 250 255  
 Leu Leu Pro Ser His Ser Lys Asp Asn Leu Lys Gly Leu Glu Glu Leu  
 260 265 270  
 Glu Arg Lys Ile Thr Tyr Glu Lys Met Val Ala Trp Ser Ser Ser Glu  
 275 280 285  
 Asn Met Ser Glu Glu Ser Val Val Leu Ser Phe Pro Arg Phe Thr Leu  
 290 295 300  
 Glu Asp Ser Tyr Asp Leu Asn Ser Ile Leu Gln Asp Met Gly Ile Thr  
 305 310 315 320  
 Asp Ile Phe Asp Glu Thr Arg Ala Asp Leu Thr Gly Ile Ser Pro Ser  
 325 330 335  
 Pro Asn Leu Tyr Leu Ser Lys Ile Ile His Lys Thr Phe Val Glu Val  
 340 345 350  
 Asp Glu Asn Gly Thr Gln Ala Ala Ala Thr Gly Ala Val Val Ser  
 355 360 365  
 Glu Arg Ser Leu Arg Ser Trp Val Glu Phe Asn Ala Asn His Pro Phe  
 370 375 380  
 Leu Phe Phe Ile Arg His Asn Lys Thr Gln Thr Ile Leu Phe Tyr Gly  
 385 390 395 400  
 Arg Val Cys Ser Pro  
 405

<210> 83  
 <211> 423  
 <212> PRT  
 <213> Mus musculus

<400> 83

Met Asp Ser Leu Thr Ala Ala Asn Asn Lys Phe Cys Phe Asp Phe Phe  
1 5 10 15

Arg Glu Ile Ser Lys Asp Asp Ala His Lys Asn Ile Phe Val Cys Pro  
20 25 30

Leu Ser Leu Ser Ala Ala Phe Gly Met Val Arg Leu Gly Ala Arg Gly  
35 40 45

Asp Ser Ala His Gln Ile Asp Glu Ala Leu His Phe Asn Glu Leu Ser  
50 55 60

Lys Asp Glu His Lys Glu Pro Asn Asp Pro Ser Pro Gln Ser Glu Ser  
65 70 75 80

Lys Ala Ser Asp Ser Ser Leu Glu Gly Gln Lys Gln Thr Ser Ala Ser  
85 90 95

Gln Asp Gln Gln Gly Glu Ser Thr Asn Asp His Gln Leu Leu Gly Cys  
100 105 110

His Phe Gly Lys Leu Leu Ser Arg Ile Asp Arg Asp Lys Ser Tyr Tyr  
115 120 125

Thr Leu Ser Met Ala Asn Arg Leu Tyr Gly Glu Gln Glu Phe Pro Ile  
130 135 140

Cys Ser Glu Tyr Ser Asp Asp Val Thr Glu Phe Phe His Thr Thr Val  
145 150 155 160

Glu Ser Val Asp Phe Gln Lys Asp Ser Glu Lys Ser Arg Gln Glu Ile  
165 170 175

Asn Phe Trp Val Glu Ser Gln Ser Gln Gly Lys Ile Lys Glu Leu Phe  
180 185 190

Gly Lys Glu Ala Ile Asp Asn Ser Thr Val Leu Val Leu Val Asn Ala  
195 200 205

Val Tyr Phe Lys Ala Lys Trp Glu Arg Glu Phe Asn Ser Glu Asn Thr  
210 215 220

Val Asp Ala Ser Phe Cys Leu Asn Glu Asn Glu Lys Lys Thr Val Lys  
225 230 235 240

Met Met Asn Gln Lys Gly Lys Phe Arg Ile Gly Phe Ile Asp Glu Leu  
245 250 255

Gln Ala Gln Ile Leu Glu Met Lys Tyr Ala Met Gly Lys Leu Ser Met  
260 265 270

Leu Val Leu Leu Pro Ser Cys Ser Glu Asp Asn Val Asn Ser Leu Gln  
275 280 285

Glu Leu Glu Lys Lys Ile Asn His Glu Lys Leu Leu Ala Trp Ser Ser





Glu Gln Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys Thr Glu  
130 135 140

Gly Lys Ile Arg Asp Leu Leu Pro Ala Asn Ser Val Asn Pro Met Thr  
145 150 155 160

Arg Leu Val Leu Val Asn Ala Ile Tyr Phe Lys Gly Asn Trp Asp Thr  
165 170 175

Gln Phe Asn Lys Glu His Thr Glu Glu Arg Pro Phe Arg Val Ser Lys  
180 185 190

Asn Val Glu Lys Pro Val Gln Met Met Phe Lys Lys Ser Thr Cys Lys  
195 200 205

Ile Thr Tyr Ile Gly Glu Ile Ser Thr Gln Ile Leu Val Leu Pro Tyr  
210 215 220

Val Gly Gln Glu Leu Asn Met Val Ile Leu Leu Pro Ser Glu Ser Thr  
225 230 235 240

Asp Leu Asn Thr Val Glu Lys Ala Leu Thr Tyr Glu Lys Phe Ile Ala  
245 250 255

Trp Thr Lys Pro Asp Val Met Asp Glu Glu Glu Val Glu Val Phe Leu  
260 265 270

Pro Arg Phe Thr Leu Glu Glu Ser Tyr Asp Met Glu Glu Phe Leu Gln  
275 280 285

Glu Leu Gly Met Thr Asp Ala Phe Glu Glu Thr Arg Ala Asp Phe Ser  
290 295 300

Gly Met Ser Ser Gly Arg Gly Leu His Leu Ser Lys Val Met His Lys  
305 310 315 320

Ser Phe Val Glu Val Thr Glu Glu Gly Thr Glu Ala Ala Ala Ala Thr  
325 330 335

Gly Ala Val Val Met Met Arg Cys Leu Met Val Val Pro Arg Phe Asn  
340 345 350

Ala Asn His Pro Phe Leu Phe Phe Ile Gln His Ser Lys Thr Gly Ala  
355 360 365

Ile Leu Phe Cys Gly Arg Phe Cys Ser Pro  
370 375

<210> 85

<211> 379

<212> PRT

<213> Mus musculus

<400> 85

Met Glu Gln Leu Ser Ser Ala Asn Thr Leu Phe Ala Leu Glu Leu Phe  
1 5 10 15

Gln Thr Leu Asn Glu Ser Ser Pro Thr Gly Asn Ile Phe Phe Ser Pro  
 20 25 30  
 Phe Ser Ile Ser Ser Ala Leu Ala Met Val Ile Leu Gly Ala Lys Gly  
 35 40 45  
 Ser Thr Ala Ala Gln Leu Ser Lys Thr Phe His Phe Asp Ser Val Glu  
 50 55 60  
 Asp Ile His Ser Arg Phe Gln Ser Leu Asn Ala Glu Val Ser Lys Arg  
 65 70 75 80  
 Gly Ala Ser His Thr Leu Lys Leu Ala Asn Arg Leu Tyr Gly Glu Lys  
 85 90 95  
 Thr Tyr Asn Phe Leu Pro Glu Tyr Leu Ala Ser Thr Gln Lys Met Tyr  
 100 105 110  
 Gly Ala Asp Leu Ala Pro Val Asp Phe Leu His Ala Ser Glu Asp Ala  
 115 120 125  
 Arg Lys Glu Ile Asn Gln Trp Val Lys Gly Gln Thr Glu Gly Lys Ile  
 130 135 140  
 Pro Glu Leu Leu Ser Val Gly Val Val Asp Ser Met Thr Lys Leu Val  
 145 150 155 160  
 Leu Val Asn Ala Ile Tyr Phe Lys Gly Met Trp Glu Glu Lys Phe Met  
 165 170 175  
 Thr Glu Asp Thr Thr Asp Ala Pro Phe Arg Leu Ser Lys Lys Asp Thr  
 180 185 190  
 Lys Thr Val Lys Met Met Tyr Gln Lys Lys Lys Phe Pro Phe Gly Tyr  
 195 200 205  
 Ile Ser Asp Leu Lys Cys Lys Val Leu Glu Met Pro Tyr Gln Gly Gly  
 210 215 220  
 Glu Leu Ser Met Val Ile Leu Leu Pro Lys Asp Ile Glu Asp Glu Ser  
 225 230 235 240  
 Thr Gly Leu Lys Lys Ile Glu Lys Gln Ile Thr Leu Glu Lys Leu Leu  
 245 250 255  
 Glu Trp Thr Lys Arg Glu Asn Leu Glu Phe Ile Asp Val His Val Lys  
 260 265 270  
 Leu Pro Arg Phe Lys Ile Glu Glu Ser Tyr Thr Leu Asn Ser Asn Leu  
 275 280 285  
 Gly Arg Leu Gly Val Gln Asp Leu Phe Ser Ser Ser Lys Ala Asp Leu  
 290 295 300  
 Ser Gly Met Ser Gly Ser Arg Asp Leu Phe Ile Ser Lys Ile Val His  
 305 310 315 320

Lys Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala  
 325 330 335

Thr Gly Gly Ile Ala Thr Phe Cys Met Leu Leu Pro Glu Glu Glu Phe  
 340 345 350

Thr Val Asp His Pro Phe Ile Phe Phe Ile Arg His Asn Pro Thr Ser  
 355 360 365

Asn Val Leu Phe Leu Gly Arg Val Cys Ser Pro  
 370 375

<210> 86

<211> 379

<212> PRT

<213> Mus musculus

<220>

<221> VARIANT

<222> (204)

<223> Wherein Xaa is any amino acid as defined in the  
 specification.

<400> 86

Met Glu Gln Leu Ser Ser Ala Asn Thr Leu Phe Ala Leu Glu Leu Phe  
 1 5 10 15

Gln Thr Leu Asn Glu Ser Ser Pro Thr Gly Asn Ile Phe Phe Ser Pro  
 20 25 30

Phe Ser Ile Ser Ser Ala Leu Ala Met Val Ile Leu Gly Ala Lys Gly  
 35 40 45

Ser Thr Ala Ala Gln Leu Ser Lys Thr Phe His Phe Asp Ser Val Glu  
 50 55 60

Asp Ile His Ser Arg Phe Gln Ser Gln Asn Ala Glu Val Ser Lys Arg  
 65 70 75 80

Gly Ala Ser His Thr Leu Lys Leu Ala Asn Arg Leu Tyr Gly Glu Lys  
 85 90 95

Thr Tyr Asn Phe Leu Pro Glu Tyr Leu Ala Ser Thr Gln Lys Met Tyr  
 100 105 110

Gly Ala Asp Leu Ala Pro Val Asp Phe Leu His Ala Ser Glu Asp Ala  
 115 120 125

Arg Lys Glu Ile Asn Gln Trp Val Lys Gly Gln Thr Glu Gly Lys Ile  
 130 135 140

Pro Glu Leu Leu Ser Val Gly Val Val Asp Ser Met Thr Lys Leu Val  
 145 150 155 160

Leu Val Asn Ala Ile Tyr Phe Lys Gly Met Trp Glu Glu Lys Phe Met



Ala Thr Gln Ile Leu Glu Val Leu Gly Phe Asn Leu Thr Glu Thr Ser  
50 55 60

Glu Ala Glu Ile His Gln Gly Phe Gln His Leu Leu Gln Glu Leu Asn  
65 70 75 80

Arg Pro Asp Thr Gly Leu Gln Leu Thr Thr Gly Asn Ala Leu Phe Val  
85 90 95

Asp Lys Ser Leu Lys Leu Leu Asp Glu Phe Leu Glu Asp Ser Lys Arg  
100 105 110

Leu Tyr Gln Ser Glu Val Phe Ser Val Asp Phe Ser Asp Pro Glu Glu  
115 120 125

Ala Lys Lys Gln Ile Asn Asp Trp Val Glu Lys Lys Thr Gln Gly Lys  
130 135 140

Ile Lys Asp Leu Leu Lys Asp Leu Asp Ser Asp Thr Val Leu Val Leu  
145 150 155 160

Val Asn Tyr Ile Tyr Phe Lys Gly Lys Trp Lys Lys Pro Phe Asp Pro  
165 170 175

Glu Leu Thr Glu Glu Glu Asp Phe His Val Asp Lys Lys Thr Thr Val  
180 185 190

Lys Val Pro Met Met Asn Gln Leu Gly Thr Phe Tyr Tyr Phe Arg Asp  
195 200 205

Glu Glu Leu Asn Cys Lys Val Leu Glu Leu Pro Tyr Lys Gly Asn Ala  
210 215 220

Thr Ser Met Leu Phe Ile Leu Pro Asp Glu Val Gly Lys Leu Glu Gln  
225 230 235 240

Val Glu Ala Ala Leu Ser Pro Glu Thr Leu Arg Lys Trp Leu Glu Asn  
245 250 255

Met Glu Pro Arg Glu Val Glu Leu Tyr Leu Pro Lys Phe Ser Ile Glu  
260 265 270

Gly Thr Tyr Asp Leu Lys Asp Val Leu Ala Lys Leu Gly Ile Thr Asp  
275 280 285

Leu Phe Ser Asn Gln Ala Asp Leu Ser Gly Ile Ser Glu Asp Glu Asp  
290 295 300

Leu Lys Val Ser Lys Ala Val His Lys Ala Val Leu Glu Val Asp Glu  
305 310 315 320

Glu Gly Thr Glu Ala Ala Ala Ala Thr Gly Ala Ile Ile Val Pro Arg  
325 330 335

Ser Leu Pro Pro Glu Leu Glu Phe Thr Ala Asp Arg Pro Phe Leu Phe  
340 345 350

Leu Ile Tyr Asp Asp Pro Thr Gly Ser Ile Leu Phe Met Gly Lys Val  
355 360 365

Val Asn Pro  
370

<210> 88  
<211> 360  
<212> PRT  
<213> Homo sapiens

<400> 88  
Phe Asp Leu Tyr Lys Glu Leu Ala Lys Glu Ser Pro Asp Lys Asn Ile  
1 5 10 15

Phe Phe Ser Pro Val Ser Ile Ser Ser Ala Leu Ala Met Leu Ser Leu  
20 25 30

Gly Ala Lys Gly Ser Thr Ala Thr Gln Ile Leu Glu Val Leu Gly Phe  
35 40 45

Asn Leu Thr Glu Thr Ser Glu Ala Asp Ile His Gln Gly Phe Gln His  
50 55 60

Leu Leu His Leu Leu Asn Arg Pro Asp Asn Lys Leu Gln Leu Lys Thr  
65 70 75 80

Ala Asn Ala Leu Phe Val Asp Lys Ser Leu Lys Leu Leu Asp Ser Phe  
85 90 95

Leu Glu Asp Val Lys Lys Leu Tyr Gly Ala Glu Val Gln Ser Val Asp  
100 105 110

Phe Ser Asp Pro Ala Glu Glu Ala Lys Lys Gln Ile Asn Asp Trp Val  
115 120 125

Lys Lys Lys Thr Gln Gly Lys Ile Lys Asp Leu Leu Ser Asp Leu Asp  
130 135 140

Pro Asp Thr Arg Leu Val Leu Val Asn Ala Ile Tyr Phe Lys Gly Lys  
145 150 155 160

Trp Lys Thr Pro Phe Asp Pro Glu Asn Thr Arg Glu Glu Asp Phe Tyr  
165 170 175

Val Asp Glu Thr Thr Thr Val Lys Val Pro Met Met Ser Gln Thr Gly  
180 185 190

Arg Thr Phe Arg Tyr Gly Arg Asp Glu Glu Leu Asn Cys Gln Val Leu  
195 200 205

Glu Leu Pro Tyr Lys Gly Asn Ala Ser Met Leu Ile Ile Leu Pro Asp  
210 215 220

Glu Gly Gly Leu Glu Thr Val Glu Lys Ala Leu Thr Pro Glu Thr Leu  
225 230 235 240





|                                                                 |     |     |     |         |
|-----------------------------------------------------------------|-----|-----|-----|---------|
| 130                                                             |     | 135 |     | 140     |
| Thr Ser Ile Glu Val Val Ala Ala Asp Thr Pro Ala Pro Phe Ser Arg |     |     |     |         |
| 145                                                             |     | 150 |     | 155 160 |
| Tyr Gln Ala Gln Asn Phe Thr Leu Val Cys Ile Val Ser Gly Gly Lys |     |     |     |         |
|                                                                 | 165 |     | 170 | 175     |
| Pro Ala Pro Met Val Tyr Phe Lys Arg Asp Gly Glu Pro Ile Asp Ala |     |     |     |         |
|                                                                 | 180 |     | 185 | 190     |
| Val Pro Leu Ser Glu Pro Pro Ala Ala Ser Ser Gly Pro Leu Gln Asp |     |     |     |         |
|                                                                 | 195 |     | 200 | 205     |
| Ser Arg Pro Phe Arg Ser Leu Leu His Arg Asp Leu Asp Asp Thr Lys |     |     |     |         |
|                                                                 | 210 |     | 215 | 220     |
| Met Gln Lys Ser Leu Ser Leu Leu Asp Ala Glu Asn Arg Gly Gly Arg |     |     |     |         |
|                                                                 | 225 |     | 230 | 235 240 |
| Pro Tyr Thr Glu Arg Pro Ser Arg Gly Leu Thr Pro Asp Pro Asn Ile |     |     |     |         |
|                                                                 | 245 |     | 250 | 255     |
| Leu Leu Gln Pro Thr Thr Glu Asn Ile Pro Glu Thr Val Val Ser Arg |     |     |     |         |
|                                                                 | 260 |     | 265 | 270     |
| Glu Phe Pro Arg Trp Val His Ser Ala Glu Pro Thr Tyr Phe Leu Arg |     |     |     |         |
|                                                                 | 275 |     | 280 | 285     |
| His Ser Arg Thr Pro Ser Ser Asp Gly Thr Val Glu Val Arg Ala Leu |     |     |     |         |
|                                                                 | 290 |     | 295 | 300     |
| Leu Thr Trp Thr Leu Asn Pro Gln Ile Asp Asn Glu Ala Leu Phe Ser |     |     |     |         |
|                                                                 | 305 |     | 310 | 315 320 |
| Cys Glu Val Lys His Pro Ala Leu Ser Met Pro Met Gln Ala Glu Val |     |     |     |         |
|                                                                 | 325 |     | 330 | 335     |
| Thr Leu Val Ala Pro Lys Gly Pro Lys Ile Val Met Thr Pro Ser Arg |     |     |     |         |
|                                                                 | 340 |     | 345 | 350     |
| Ala Arg Val Gly Asp Thr Val Arg Ile Leu Val His Gly Phe Gln Asn |     |     |     |         |
|                                                                 | 355 |     | 360 | 365     |
| Glu Val Phe Pro Glu Pro Met Phe Thr Trp Thr Arg Val Gly Ser Arg |     |     |     |         |
|                                                                 | 370 |     | 375 | 380     |
| Leu Leu Asp Gly Ser Ala Glu Phe Asp Gly Lys Glu Leu Val Leu Glu |     |     |     |         |
|                                                                 | 385 |     | 390 | 395 400 |
| Arg Val Pro Ala Glu Leu Asn Gly Ser Met Tyr Arg Cys Thr Ala Gln |     |     |     |         |
|                                                                 | 405 |     | 410 | 415     |
| Asn Pro Leu Gly Ser Thr Asp Thr His Thr Arg Leu Ile Val Phe Glu |     |     |     |         |
|                                                                 | 420 |     | 425 | 430     |
| Asn Pro Asn Ile Pro Arg Gly Thr Glu Asp Ser Asn Gly Ser Ile Gly |     |     |     |         |

435 440 445

Pro Thr Gly Ala Arg Leu Thr Leu Val Leu Ala Leu Thr Val Ile Leu  
450 455 460

Glu Leu Thr  
465

<210> 90  
<211> 404  
<212> PRT  
<213> *Macaca fascicularis*

<400> 90  
Met Arg Ala Ala Pro Ser Leu Arg Arg Cys Val Cys Leu Leu Leu Ala  
1 5 10 15

Ala Ile Leu Asp Leu Ala Cys Gly Tyr Leu Thr Val Asn Ile Glu Pro  
20 25 30

Leu Pro Pro Val Val Ala Gly Asp Ala Val Thr Leu Lys Cys Asn Phe  
35 40 45

Lys Thr Asp Gly Arg Met Arg Glu Ile Val Trp Tyr Arg Val Thr Asp  
50 55 60

Gly Gly Thr Ile Lys Gln Lys Ile Phe Thr Phe Asp Ala Met Phe Ser  
65 70 75 80

Thr Asn Tyr Ser His Met Glu Asn Tyr Arg Lys Arg Glu Asp Leu Val  
85 90 95

Tyr Gln Ser Thr Val Arg Leu Pro Glu Val Arg Ile Ser Asp Asn Gly  
100 105 110

Pro Tyr Glu Cys His Val Gly Ile Tyr Asp Arg Ala Thr Arg Glu Lys  
115 120 125

Val Val Leu Ala Ser Gly Asn Ile Phe Leu Asn Val Met Ala Pro Pro  
130 135 140

Thr Ser Ile Glu Val Val Ala Ala Asp Thr Pro Ala Pro Phe Ser Arg  
145 150 155 160

Tyr Gln Ala Gln Asn Phe Thr Leu Val Cys Ile Val Ser Gly Gly Lys  
165 170 175

Pro Ala Pro Met Val Tyr Phe Lys Arg Asp Gly Glu Pro Ile Asp Ala  
180 185 190

Val Pro Leu Ser Glu Pro Pro Ala Ala Ser Ser Gly Pro Leu Gln Asp  
195 200 205

Ser Arg Pro Phe Arg Ser Leu Leu His Arg Asp Leu Asp Asp Thr Lys  
210 215 220

Met Gln Lys Ser Leu Ser Leu Leu Asp Ala Glu Asn Arg Gly Gly Arg  
 225 230 235 240

Pro Tyr Thr Glu Arg Pro Ser His Gly Leu Thr Pro Asp Pro Asn Ile  
 245 250 255

Leu Leu Gln Pro Thr Thr Glu Asn Ile Pro Glu Thr Val Val Ser Arg  
 260 265 270

Glu Phe Pro Arg Trp Val His Ser Ala Glu Pro Thr Tyr Phe Leu Arg  
 275 280 285

His Ser Arg Thr Pro Ser Ser Asp Gly Thr Val Glu Val Arg Ala Leu  
 290 295 300

Leu Thr Trp Thr Leu Asn Pro Gln Ile Asp Asn Glu Ala Leu Phe Ser  
 305 310 315 320

Cys Glu Val Lys His Pro Ala Leu Ser Met Pro Met Gln Ala Glu Val  
 325 330 335

Thr Leu Val Ala Pro Lys Gly Pro Lys Ile Val Met Thr Pro Ser Arg  
 340 345 350

Ala Arg Val Gly Asp Thr Val Arg Ile Leu Val His Gly Phe Gln Asn  
 355 360 365

Glu Val Phe Pro Glu Pro Met Phe Thr Trp Thr Arg Val Gly Ser Arg  
 370 375 380

Leu Leu Asp Gly Ser Ala Glu Phe Asp Gly Lys Glu Leu Val Leu Glu  
 385 390 395 400

Arg Val Pro Ala

<210> 91  
 <211> 80  
 <212> PRT  
 <213> Homo sapiens

<400> 91  
 Val Thr Asp Gly Gly Thr Ile Lys Gln Lys Ile Phe Thr Phe Asp Ala  
 1 5 10 15

Met Phe Ser Thr Asn Tyr Ser His Met Glu Asn Tyr Arg Lys Arg Glu  
 20 25 30

Asp Leu Val Tyr Gln Ser Thr Val Arg Leu Pro Glu Val Arg Ile Ser  
 35 40 45

Asp Asn Gly Pro Tyr Glu Cys His Val Gly Ile Tyr Asp Arg Ala Thr  
 50 55 60

Arg Glu Lys Val Val Leu Ala Ser Gly Asn Ile Phe Leu Asn Val Met  
 65 70 75 80

*(The following information was obtained from the above mentioned sources.)*

Met Thr Thr Lys Ala Pro Thr Phe Thr Gln Pro Leu Gln Ser Val Val  
1 5 10 15

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Val | Pro | Glu | Val | Ser | Trp | Tyr | Arg | Asp | Gly | Gln | Val | Leu | Ser | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

Leu Val Ile Pro Ser Val Thr Glu Ala Asn Ser Gly Arg Tyr Thr Ile  
65 70 75 80

Val Thr Ala Gly Thr Ala Pro Pro Asn Phe Ser Gln Arg Leu Gln Ser  
100 105 110

Gly Ile Pro Thr Pro Val Val Lys Phe Tyr Arg Asp Gly Val Glu Ile  
130 135 140

Leu Ile Ile Ala Glu Ala Tyr Pro Glu Asp Ser Gly Thr Tyr Ser Val  
165 170 175

Ile Gln Gly Glu Glu Glu Ala Val Pro Ala Lys Lys Thr Lys Thr Ile  
195 200 205

Lys Ile Glu Thr His Phe Asp Ala Arg Ser Leu Thr Ser Val Glu Met  
225 230 235 240

132

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 245 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 250 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 255 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg | Met | Pro | Pro | Arg | Pro | Thr | Ser | Lys | Ser | Pro | Thr | Pro | Pro | Val | Ile |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 260 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 265 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 270 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Thr | Ala | Lys | Ala | Gln | Met | Ala | Arg | Gln | Gln | Ser | Pro | Ser | Pro | Val | Arg |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 275 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 280 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 285 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln | Ser | Pro | Ser | Pro | Val | Arg | His | Val | Arg | Ala | Pro | Thr | Pro | Ser | Pro |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 290 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 295 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 300 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val | Arg | Ser | Val | Ser | Pro | Ala | Gly | Arg | Ile | Ser | Thr | Ser | Pro | Ile | Arg |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 305 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 310 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 315 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pro | Val | Lys | Ser | Pro | Ser | Pro | Ile | Arg | Lys | Ala | Gln | Val | Val | Thr | Pro |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 320 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 325 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 330 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly | Ala | Glu | Val | Leu | Pro | Pro | Trp | Arg | Gln | Glu | Gly | Tyr | Ser | Ala | Thr |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 335 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 340 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 345 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala | Glu | Ala | Gln | Met | Lys | Glu | Thr | Arg | Val | Ser | Thr | Ser | Ala | Thr | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 350 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 355 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 360 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ile | Arg | Thr | Glu | Glu | Arg | Trp | Glu | Gly | Arg | Tyr | Gly | Leu | Gln | Glu | Gln |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 365 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 370 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 375 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val | Thr | Ile | Ser | Gly | Ala | Ala | Ala | Gly | Glu | Val | Ala | Ala | Gly | Ala | Lys |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 380 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 385 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 390 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu | Val | Arg | Lys | Glu | Pro | Glu | Lys | Thr | Pro | Val | Pro | Thr | Val | Ile | Ile |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 395 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 400 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 405 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala | Thr | Asp | Lys | Ala | Lys | Glu | Gln | Glu | Arg | Ile | Ser | Thr | Ala | Arg | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 410 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 415 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 420 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu | Ile | Ser | Ala | Arg | His | Glu | Gln | Val | His | Val | Ser | His | Glu | Gln | Ile |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 425 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 430 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 435 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu | Ala | Gly | Lys | Arg | Ala | Glu | Ala | Val | Ala | Thr | Val | Val | Ala | Ala | Val |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 440 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 445 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 450 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Asp | Gln | Ala | Arg | Val | Arg | Ser | Pro | Trp | Glu | Thr | Glu | Gln | Val | Asp | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 455 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 460 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 465 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Thr | Tyr | Val | Lys | Lys | Lys | Thr | Leu | Glu | Tyr | Gly | Tyr | Lys | Glu | His | Ala |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 470 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 475 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 480 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val | Lys | Asp | His | Glu | Ala | Gln | Ala | Glu | His | His | Val | Ala | Thr | Lys | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 485 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 490 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 495 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val | Lys | Thr | Val | Tyr | Val | Pro | Pro | Glu | Lys | His | Ile | Pro | Ala | Ala | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 500 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 505 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 510 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val | Lys | Thr | Val | Tyr | Val | Pro | Pro | Glu | Lys | His | Ile | Pro | Ala | Ala | Glu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 515 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 520 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 525 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys | Lys | Glu | Val | His | Val | Ser | Thr | Glu | Ile | Lys | Arg | Glu | Thr | Glu | Ala |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 530 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 535 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 540 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys | Ile | Glu | Lys | Thr | Ile | His | Ile | Glu | His | Pro | Arg | Pro | Arg | Thr | Ala |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

545                      550                      555                      560

Ser Pro His Phe Thr Val Ser Lys Ile Ala Val Pro Lys Pro Asp His  
565                      570                      575

Thr Tyr Glu Val Ser Ile Ala Gly Ser Ala Met Ala Thr Leu Glu Lys  
580                      585                      590

Glu Leu Ser Ala Thr Ser Ala Ala Gln Lys Ile Thr Lys Pro Val Lys  
595                      600                      605

Pro Pro Gln Leu Lys Pro His Glu Val Lys Ile Lys Pro Glu Ser Ala  
610                      615                      620

Pro Pro Gln Phe Pro Phe Thr Glu Ala Ala Glu Thr Tyr Lys Ala His  
625                      630                      635                      640

Tyr Asp Val Glu Thr Lys Lys Glu Val Asp Val Ser Ile Lys Gly Glu  
645                      650                      655

Ala Val Arg Glu Asp His Leu Leu Leu Arg Lys Glu Ser Glu Ala Lys  
660                      665                      670

Val Thr Glu Thr Ala Arg Val Pro Val Pro Ala Glu Ile Pro Val Thr  
675                      680                      685

Pro Pro Thr Leu Val Trp Gly Leu Lys Asn Lys Thr Val Thr Glu Gly  
690                      695                      700

Glu Ser Val Thr Leu Glu Cys His Ile Ser Gly His Pro Gln Pro Thr  
705                      710                      715                      720

Val Thr Trp Tyr Arg Glu Asp Tyr Lys Ile Glu Ser Ser Met Asp Phe  
725                      730                      735

Gln Ile Thr Phe Lys Ala Gly Leu Ala Arg Leu Val Ile Arg Glu Ala  
740                      745                      750

Phe Ala Glu Asp Ser Gly Arg Phe Thr Cys Thr Ala Thr Asn Lys Ala  
755                      760                      765

Gly Ser Val Ser Thr Ser Cys His Leu His Val Lys Val Ser Glu Glu  
770                      775                      780

Thr Glu Thr Arg Glu Thr Ile Ser Glu Lys Val Val Thr Glu Glu Lys  
785                      790                      795                      800

Ser Tyr Val Glu Thr Lys Asp Val Val Met Glu Asp Val Ser Ala Ala  
805                      810                      815

Ala Glu Glu Val Ser Gly Glu Pro Val Pro Pro Phe Phe Ile Arg Lys  
820                      825                      830

Pro Val Val His Lys Leu Ile Glu Gly Gly Ser Ile Ile Phe Glu Cys  
835                      840                      845

Gln Val Gly Gly Asn Pro Lys Pro His Val Leu Trp Lys Lys Gly Gly

850                      855                      860

Val Pro Leu Thr Thr Gly Tyr Arg Tyr Lys Val Ser Tyr Lys Arg Glu  
865                      870                      875                      880

Thr Gly Glu Cys Lys Leu Glu Ile Ser Met Thr Phe Ala Asp Asp Ala  
                    885                      890                      895

Gly Glu Tyr Thr Ile Val Ile Arg Asn Lys Phe Gly Glu Ala Ser Ala  
                    900                      905                      910

Thr Val Ser Leu Leu Glu Glu Ala Asp Tyr Glu Ala Tyr Ile Lys Ser  
                    915                      920                      925

Gln Gln Glu Met Met Tyr Gln Thr Gln Val Thr Ala Tyr Val Gln Glu  
                    930                      935                      940

Pro Lys Val Ala Glu Val Ala Pro Pro Ile Ser Tyr Gly Asp Phe Asp  
945                      950                      955                      960

Lys Glu Tyr Glu Lys Glu Gln Ala Leu Ile Arg Lys Lys Met Ala Lys  
                    965                      970                      975

Asp Thr Val Met Val Arg Thr Phe Val Glu Asp Glu Glu Phe His Ile  
                    980                      985                      990

Ser Ser Phe Glu Glu Arg Leu Ile Lys Glu Ile Glu Leu Arg Ile Ile  
                    995                      1000                      1005

Lys Thr Thr Leu Asp Glu Leu Leu Glu Glu Asp Gly Glu Glu Met Met  
1010                      1015                      1020

Ile Asp Ile Ser Glu Ser Glu Ala Ile Gly Ala Gly Phe Asp Leu Arg  
1025                      1030                      1035                      1040

Leu Lys Asn Tyr Arg Thr Phe Glu Gly Thr Gly Val Thr Phe His Cys  
                    1045                      1050                      1055

Lys Thr Thr Gly Tyr Pro Leu Pro Lys Ile Ala Trp Tyr Lys Asp Gly  
                    1060                      1065                      1070

Lys Arg Ile Arg His Gly Glu Arg Tyr His Met Glu Val Leu Gln Asp  
1075                      1080                      1085

Gly Ser Ala Ser Leu Arg Leu Pro Val Val Leu Pro Glu Asp Glu Gly  
1090                      1095                      1100

Ile Tyr Thr Val Phe Ala Ser Asn Met Lys Gly Asn Ala Ile Cys Ser  
1105                      1110                      1115                      1120

Ala Lys Leu Tyr Val Glu Pro Val Ala Pro Thr Ala Thr Pro Gly Tyr  
                    1125                      1130                      1135

Met Pro Gly Pro Glu Val Met Arg Arg Tyr Arg Ser Ile Ser Pro Arg  
                    1140                      1145                      1150

Ser Pro Ser Arg Ser Pro Ala Arg Ser Ser Pro Ser Cys Ser Pro Ala

|         |         |         |         |         |         |         |         |      |  |  |  |
|---------|---------|---------|---------|---------|---------|---------|---------|------|--|--|--|
| 1155    |         |         |         | 1160    |         |         |         | 1165 |  |  |  |
| Arg Arg | Leu Asp | Glu Thr | Asp Glu | Gly Gln | Leu Glu | Arg Leu | Tyr Lys |      |  |  |  |
| 1170    |         |         | 1175    |         | 1180    |         |         |      |  |  |  |
| Pro Val | Phe Val | Leu Lys | Pro Thr | Ser Val | Lys Cys | Ser Gln | Gly Gln |      |  |  |  |
| 1185    |         | 1190    |         |         | 1195    |         | 1200    |      |  |  |  |
| Thr Ala | Arg Phe | Asp Leu | Lys Val | Val Val | Gly Arg | Pro Met | Pro Glu | Thr  |  |  |  |
|         |         | 1205    |         |         | 1210    |         | 1215    |      |  |  |  |
| Tyr Trp | Phe His | Asn Gly | Gln Gln | Val Val | Asn Asp | Tyr Thr | His Lys |      |  |  |  |
|         | 1220    |         |         | 1225    |         | 1230    |         |      |  |  |  |
| Ile Val | Ile Lys | Glu Asp | Gly Thr | Gln Ser | Leu Ile | Ile Ile | Val Pro | Ala  |  |  |  |
|         | 1235    |         | 1240    |         |         | 1245    |         |      |  |  |  |
| Met Pro | Glu Asp | Ser Gly | Glu Trp | Ala Val | Ile Ala | Gln Asn | Arg Ala |      |  |  |  |
| 1250    |         |         | 1255    |         | 1260    |         |         |      |  |  |  |
| Gly Lys | Ala Ser | Val Ser | Val Thr | Leu Ser | Val Glu | Ala Lys | Glu Asp |      |  |  |  |
| 1265    |         | 1270    |         |         | 1275    |         | 1280    |      |  |  |  |
| Leu Val | Arg Pro | Arg Phe | Val Glu | Arg Leu | Arg Asn | Val Ser | Val Lys |      |  |  |  |
|         |         | 1285    |         | 1290    |         | 1295    |         |      |  |  |  |
| Glu Gly | Ser Arg | Leu His | Met Ala | Val Lys | Ala Thr | Gly Asn | Pro Asn |      |  |  |  |
|         | 1300    |         |         | 1305    |         | 1310    |         |      |  |  |  |
| Pro Asp | Ile Val | Trp Leu | Lys Asn | Ser Asp | Ile Ile | Val Pro | His Lys |      |  |  |  |
|         | 1315    |         | 1320    |         | 1325    |         |         |      |  |  |  |
| Tyr Pro | Arg Ile | Arg Ile | Glu Gly | Thr Lys | Gly Ala | Ala Ala | Leu Asn |      |  |  |  |
| 1330    |         |         | 1335    |         | 1340    |         |         |      |  |  |  |
| Ile Glu | Ser Thr | Ala Arg | Gln Asp | Ala Ala | Trp Tyr | Thr Ala | Thr Ala |      |  |  |  |
| 1345    |         | 1350    |         |         | 1355    |         | 1360    |      |  |  |  |
| Ile Asn | Lys Ala | Gly Arg | Asp Thr | Thr Arg | Cys Lys | Val Asn | Val Glu |      |  |  |  |
|         |         | 1365    |         | 1370    |         | 1375    |         |      |  |  |  |
| Val Glu | His Ala | Glu Pro | Glu Pro | Glu Arg | Arg Arg | Leu Ile | Ile Pro | Lys  |  |  |  |
|         | 1380    |         |         | 1385    |         | 1390    |         |      |  |  |  |
| Gly Thr | Tyr Lys | Ala Lys | Glu Ile | Ala Ala | Pro Glu | Leu Glu | Pro Leu |      |  |  |  |
|         | 1395    |         | 1400    |         | 1405    |         |         |      |  |  |  |
| His Leu | Arg Tyr | Gly Gln | Glu Gln | Trp Glu | Glu Gly | Asp Leu | Tyr Asp |      |  |  |  |
| 1410    |         |         | 1415    |         | 1420    |         |         |      |  |  |  |
| Lys Glu | Lys Gln | Gln Lys | Pro Phe | Phe Lys | Lys Lys | Lys Leu | Thr Ser | Leu  |  |  |  |
| 1425    |         | 1430    |         |         | 1435    |         | 1440    |      |  |  |  |
| Arg Leu | Lys Gln | Phe Gly | Pro Ala | His Phe | Glu Cys | Arg Leu | Thr Pro |      |  |  |  |
|         |         | 1445    |         | 1450    |         | 1455    |         |      |  |  |  |
| Ile Gly | Asp Pro | Thr Met | Val Val | Glu Trp | Leu His | Asp Gly | Lys Pro |      |  |  |  |



1460                      1465                      1470  
 Leu Glu Ala Ala Asn Arg Leu Arg Met Ile Asn Glu Phe Gly Tyr Cys  
       1475                      1480                      1485  
 Ser Leu Asp Tyr Gly Val Ala Tyr Ser Arg Asp Ser Gly Val Ile Thr  
       1490                      1495                      1500  
 Cys Arg Ala Thr Asn Lys Tyr Gly Thr Asp His Thr Ser Ala Thr Leu  
       1505                      1510                      1515                      1520  
 Ile Val Lys Asp Glu Lys Ser Leu Val Glu Glu Ser Gln Leu Pro Glu  
               1525                      1530                      1535  
 Gly Arg Arg Gly Met Gln Arg Ile Glu Glu Leu Glu Arg Met Ala His  
               1540                      1545                      1550  
 Glu Gly Ala Leu Pro Ala Val Ala Val Asp Gln Lys Glu Lys Gln Lys  
               1555                      1560                      1565  
 Pro Glu Leu Val Leu Val Pro Glu Pro Ala Arg Val Leu Glu Gly Glu  
               1570                      1575                      1580  
 Thr Ala Arg Phe Arg Cys Arg Val Thr Gly Tyr Pro Leu Pro Lys Val  
       1585                      1590                      1595                      1600  
 Asn Trp Tyr Leu Asn Ser Gln Leu Ile Arg Lys Ser Lys Arg Phe Arg  
               1605                      1610                      1615  
 Leu Arg Tyr Asp Gly Ile His Tyr Leu Asp Ile Val Asp Cys Lys Ser  
               1620                      1625                      1630  
 Tyr Asp Thr Gly Glu Val Lys Val Thr Ala Glu Asn Pro Glu Gly Phe  
               1635                      1640                      1645  
 Ile Glu His Lys Val Lys Leu Glu Ile Gln Gln Arg Glu Asp Phe Arg  
               1650                      1655                      1660  
 Ser Val Leu Arg Arg Ala Pro Glu Pro Arg His Glu Pro Val Val Thr  
       1665                      1670                      1675                      1680  
 Glu Pro Gly Lys Leu Leu Phe Glu Val Gln Lys Ile Asp Lys Pro Ala  
               1685                      1690                      1695  
 Glu Ala Thr Thr Lys Glu Val Val Lys Leu Lys Arg Ala Glu Arg Ile  
               1700                      1705                      1710  
 Thr His Glu Lys Leu Ser Glu Glu Ser Glu Glu Leu Arg Ser Lys Phe  
               1715                      1720                      1725  
 Lys Arg Arg Thr Glu Glu Gly Tyr Tyr Glu Ala Ile Thr Ala Val Glu  
               1730                      1735                      1740  
 Leu Lys Ser Arg Lys Lys Asp Glu Ser Tyr Glu Glu Met Leu Lys Lys  
       1745                      1750                      1755                      1760  
 Thr Lys Glu Glu Leu Leu His Trp Thr Lys Glu Ile Pro Glu Glu Glu



2065                      2070                      2075                      2080

Arg Pro Met Thr Ile Leu Gln Gly Leu Thr Asp Gln Lys Val Cys Glu  
                                  2085                      2090                      2095

Gly Asp Ile Val Gln Leu Glu Val Lys Val Ser Val Glu Asn Val Glu  
                                  2100                      2105                      2110

Gly Val Trp Met Lys Asp Gly His Glu Ile Gln Ser Ser Asp Arg Ile  
                                  2115                      2120                      2125

His Ile Val Leu Asp Lys Gln Ser His Met Leu Leu Ile Glu Asp Ala  
                                  2130                      2135                      2140

Thr Gln Glu Asp Ser Gly Thr Tyr Ser Phe Ser Ile Pro Gly Leu Glu  
 2145                                   2150                      2155                      2160

Leu Ser Thr Thr Gly Gln Val Thr Val Tyr Ser Val Glu Ile Ile Val  
                                  2165                      2170                      2175

Pro Leu Lys Asp Val His Val Val Glu Gly Thr Lys Ala Ile Leu Glu  
                                  2180                      2185                      2190

Cys Lys Val Ser Ala Pro Asp Val Thr Ser Ser Lys Trp Tyr Leu Asn  
                                  2195                      2200                      2205

Asp His Gln Ile Lys Pro Asp Glu Arg Val Gln Ala Val Cys Lys Gly  
                                  2210                      2215                      2220

Thr Lys Gln Arg Leu Val Ile Thr Arg Thr His Ala Ser Asp Glu Gly  
 2225                                   2230                      2235                      2240

His Tyr Lys Leu Met Val Gly Lys Val Glu Thr Ser Cys Asn Val Thr  
                                  2245                      2250                      2255

Val Glu Glu Ile Glu Ile Ile Arg Gly Leu His Asp Ile Thr Cys Thr  
                                  2260                      2265                      2270

Glu Thr Gln Asn Val Ser Phe Glu Val Glu Leu Ser His Ser Gly Ile  
                                  2275                      2280                      2285

Asp Val Ile Trp His Phe Lys Gly Gln Glu Ile Lys Ala Gly Pro Lys  
                                  2290                      2295                      2300

Tyr Lys Ile Glu Ala Arg Gly Lys Ile Tyr Lys Leu Thr Val Val Lys  
 2305                                   2310                      2315                      2320

Met Met Lys Asp Asp Glu Gly Glu Tyr Val Phe Tyr Ala Gly Gly Lys  
                                  2325                      2330                      2335

Lys Thr Ser Gly Lys Leu Ile Val Ala Gly Gly Ala Ile Ser Lys Pro  
                                  2340                      2345                      2350

Leu Ala Asp Leu Thr Val Ala Glu Ser Gln Arg Ala Val Phe Glu Cys  
                                  2355                      2360                      2365

Glu Val Ala Asn Pro Glu Ser Glu Gly Gln Trp Leu Lys Asn Gly Lys

2370                      2375                      2380

Pro Leu Pro Met Thr Asp Gln Tyr Arg Ala Glu Thr Asp Gly Val Lys  
2385                      2390                      2395                      2400

Arg Arg Leu Asn Ile Pro Ala Ala Lys Met Asp Asp Met Gly Glu Tyr  
                    2405                      2410                      2415

Ser Tyr Glu Ile Ala Ser Ser Lys Thr Ser Ala Lys Leu His Val Glu  
                    2420                      2425                      2430

Ala Val Lys Ile Lys Lys Thr Leu Lys Asn Leu Thr Val Thr Glu Thr  
                    2435                      2440                      2445

Gln Glu Ala Val Phe Ser Val Glu Leu Ser His Pro Asp Val Lys Gly  
                    2450                      2455                      2460

Ala Leu Trp Ile Lys Asn Gly Val Glu Leu Glu Ser Asn Asp Lys Tyr  
2465                      2470                      2475                      2480

Glu Ile Ser Val Lys Gly Thr Val His Thr Leu Lys Ile Lys His Cys  
                    2485                      2490                      2495

Val Val Thr Asp Glu Ser Val Tyr Ser Phe Lys Leu Gly Lys Ile Gly  
                    2500                      2505                      2510

Ala Asn Ala Arg Leu His Val Glu Thr Val Lys Ile Ile Lys Lys Pro  
                    2515                      2520                      2525

Lys Asp Val Thr Ala Leu Glu Asn Ala Val Val Ser Phe Glu Leu Ser  
                    2530                      2535                      2540

Val Ser His Asp Thr Val Pro Val Arg Trp Phe His Lys Asn Val Glu  
2545                      2550                      2555                      2560

Leu Lys Gln Ser Asp Lys Tyr Lys Met Ile Ser Gln Arg Lys Val His  
                    2565                      2570                      2575

Lys Leu Met Leu His Asn Ile Ser Pro Ala Asp Ala Gly Glu Tyr Thr  
                    2580                      2585                      2590

Ala Phe Val Gly Gln Leu Glu Cys Lys Ala Lys Leu Phe Val Glu Thr  
                    2595                      2600                      2605

Ile His Ile Thr Lys Thr Met Lys Ser Ile Glu Ile Pro Glu Thr Lys  
                    2610                      2615                      2620

Thr Ala Ser Phe Gln Cys Glu Val Ser His Phe Asn Val Pro Ser Val  
2625                      2630                      2635                      2640

Trp Leu Lys Asn Gly Val Glu Ile Glu Met Ser Glu Lys Phe Lys Ile  
                    2645                      2650                      2655

Val Val Gln Gly Lys Leu His Gln Leu Asn Ile Met Asn Thr Ser Ser  
                    2660                      2665                      2670

Glu Asp Ser Ala Glu Tyr Thr Phe Val Cys Gly Asn Asp Arg Val Ser



2980 2985 2990

Pro Gln Pro Lys Val Ser Trp Tyr Lys Asp Asp Gln Gln Leu Ser Pro  
2995 3000 3005

Gly Phe Lys Cys Lys Phe Leu His Asp Ala Gln Glu Tyr Thr Leu Leu  
3010 3015 3020

Leu Ile Glu Thr Phe Pro Glu Asp Ser Ala Val Tyr Thr Cys Glu Ala  
3025 3030 3035 3040

Lys Asn Asp Tyr Gly Val Ala Thr Thr Ser Ala Ser Leu Ser Val Glu  
3045 3050 3055

Ile Pro Glu Val Val Ser Pro Glu Leu Glu Val Pro Val Tyr Pro Pro  
3060 3065 3070

Ala Val Ile Val Pro Leu Arg Asp Ala Val Thr Ser Glu Gly Gln Ser  
3075 3080 3085

Ala Arg Phe Gln Cys Arg Val Thr Gly Thr Asp Leu Lys Val Ser Trp  
3090 3095 3100

Tyr Ser Lys Asp Arg Glu Ile Lys Pro Ser Arg Phe Phe Arg Met Thr  
3105 3110 3115 3120

Gln Phe Glu Asp Thr Tyr Gln Leu Glu Ile Ala Glu Ala Tyr Pro Glu  
3125 3130 3135

Asp Glu Gly Thr Tyr Thr Phe Val Ala Ser Asn Ser Val Gly Gln Val  
3140 3145 3150

Thr Ser Thr Ala Ile Leu Lys Leu Glu Ala Pro Glu Lys Ile Met Tyr  
3155 3160 3165

Glu Lys Leu Glu Glu Glu Ile Glu Met Glu Val Lys Val Ala Pro Ile  
3170 3175 3180

Leu Arg Arg Arg Leu Glu Pro Leu Glu Val Ala Val Asn His Val Ala  
3185 3190 3195 3200

Lys Phe Thr Cys Glu Val Glu Thr Thr Pro Asn Val Lys Phe Gln Trp  
3205 3210 3215

Tyr Lys Ala Gly Arg Glu Ile Tyr Asp Gly Asp Lys Tyr Ser Ile Arg  
3220 3225 3230

Ser Ser Asn Tyr Leu Ser Thr Leu Glu Ile Pro Arg Pro Gln Val Val  
3235 3240 3245

Asp Cys Gly Glu Tyr Ser Cys Lys Ala Ser Asn Gln His Gly Ser Val  
3250 3255 3260

Ser Ser Thr Ala Phe Leu Thr Val Thr Glu Pro Pro Arg Phe Ile Lys  
3265 3270 3275 3280

Lys Leu Asp Ser Ser Arg Leu Val Lys Gln His Asp Ser Thr Arg Tyr

|                                                                 |      |      |
|-----------------------------------------------------------------|------|------|
| 3285                                                            | 3290 | 3295 |
| Glu Cys Lys Val Gly Gly Ser Pro Glu Ile Lys Val Thr Trp Tyr Lys |      |      |
| 3300                                                            | 3305 | 3310 |
| Gly Glu Thr Glu Ile His Pro Ser Glu Lys Tyr Ser Met Ser Phe Val |      |      |
| 3315                                                            | 3320 | 3325 |
| Asp Ser Val Ala Val Leu Glu Met His Asn Leu Ser Val Glu Asp Ser |      |      |
| 3330                                                            | 3335 | 3340 |
| Gly Asp Tyr Ser Cys Glu Ala Gln Asn Pro Ala Gly Ser Ala Ser Thr |      |      |
| 3345                                                            | 3350 | 3355 |
| Ser Thr Ser Leu Lys Val Lys Ala Pro Pro Ala Phe Thr Lys Lys Pro |      |      |
| 3365                                                            | 3370 | 3375 |
| His Pro Val Gln Thr Leu Lys Gly Ser Asp Val His Leu Glu Cys Glu |      |      |
| 3380                                                            | 3385 | 3390 |
| Leu Gln Gly Thr Pro Pro Phe Gln Ile Ser Trp Tyr Lys Asp Lys Arg |      |      |
| 3395                                                            | 3400 | 3405 |
| Glu Ile Arg Ser Ser Lys Lys Tyr Lys Val Met Ser Glu Asn Tyr Leu |      |      |
| 3410                                                            | 3415 | 3420 |
| Ala Ser Ile His Ile Leu Asn Val Asp Thr Ala Asp Val Gly Glu Tyr |      |      |
| 3425                                                            | 3430 | 3435 |
| His Cys Lys Ala Val Asn Asp Val Gly Ser Asp Ser Cys Ile Gly Ser |      |      |
| 3445                                                            | 3450 | 3455 |
| Val Thr Leu Arg Ala Pro Pro Thr Phe Val Lys Lys Leu Ser Asp Val |      |      |
| 3460                                                            | 3465 | 3470 |
| Thr Val Val Val Gly Glu Thr Ile Glu Leu Gln Ala Ala Val Glu Gly |      |      |
| 3475                                                            | 3480 | 3485 |
| Ala Gln Pro Ile Ser Val Leu Trp Leu Lys Asp Lys Gly Glu Ile Ile |      |      |
| 3490                                                            | 3495 | 3500 |
| Arg Glu Ser Glu Asn Leu Trp Ile Ser Tyr Ser Glu Asn Val Ala Ser |      |      |
| 3505                                                            | 3510 | 3515 |
| Leu Lys Ile Gly Asn Ala Glu Pro Thr Asn Ala Gly Lys Tyr Ile Cys |      |      |
| 3525                                                            | 3530 | 3535 |
| Gln Ile Lys Asn Asp Ala Gly Phe Gln Glu Cys Phe Ala Lys Leu Thr |      |      |
| 3540                                                            | 3545 | 3550 |
| Val Leu Glu Pro Ala Val Ile Val Glu Lys Pro Gly Pro Val Lys Val |      |      |
| 3555                                                            | 3560 | 3565 |
| Thr Ala Gly Asp Ser Cys Thr Leu Glu Cys Thr Val Asp Gly Thr Pro |      |      |
| 3570                                                            | 3575 | 3580 |
| Glu Leu Thr Ala Arg Trp Phe Lys Asp Gly Asn Glu Leu Ser Thr Asp |      |      |







1950-1951

<221> VARIANT

<223> Wherein Xaa is any amino acid as defined in the specification.

&lt;221&gt; VARIANT

<223> Wherein Xaa is any amino acid as defined in the specification.

<221> VARIANT

<223> Wherein Xaa is any amino acid as defined in the specification.

Met Ile Ser Trp Glu Val Val His Thr Val Phe Leu Phe Ala Leu Leu  
1 5 10 15

Tyr Ser Ser Leu Ala Gln Asp Ala Ser Pro Gln Ser Glu Ile Arg Ala  
20 25 30

Glu Glu Phe Pro Glu Gly Ala Ser Thr Leu Ala Phe Val Phe Asp Val  
35 40 45

Thr Gly Ser Met Tyr Asp Asp Leu Val Gln Val Ile Glu Gly Ala Ser  
50 55 60

Lys Ile Leu Glu Thr Ser Leu Lys Arg Pro Lys Arg Pro Leu Phe Asn  
65 70 75 80

Phe Ala Leu Val Pro Phe His Asp Pro Glu Ile Gly Pro Val Thr Ile  
85 90 95

Thr Thr Asp Pro Lys Lys Phe Gln Tyr Glu Leu Arg Glu Leu Tyr Val  
100 105 110

Gln Gly Gly Gly Asp Cys Pro Glu Met Ser Ile Gly Ala Ile Lys Ile  
115 120 125

Ala Leu Glu Ile Ser Leu Pro Gly Ser Phe Ile Tyr Val Phe Thr Asp  
130 135 140

Ala Arg Ser Lys Asp Tyr Arg Leu Thr His Glu Val Leu Gln Leu Ile  
145 150 155 160

Gln Gln Lys Gln Ser Gln Val Val Phe Val Leu Thr Gly Asp Cys Asp  
165 170 175

Asp Arg Thr His Ile Gly Tyr Lys Val Tyr Glu Glu Ile Ala Ser Thr  
180 185 190

Ser Ser Gly Gln Val Phe His Leu Asp Lys Lys Gln Val Asn Glu Val  
 195 200 205  
 Leu Lys Trp Val Glu Glu Ala Val Gln Ala Ser Lys Val His Leu Leu  
 210 215 220  
 Ser Thr Asp His Leu Glu Gln Ala Val Asn Thr Trp Arg Ile Pro Phe  
 225 230 235 240  
 Asp Pro Ser Leu Lys Glu Val Thr Val Ser Leu Ser Gly Pro Ser Pro  
 245 250 255  
 Met Ile Glu Ile Arg Asn Pro Leu Gly Lys Leu Ile Lys Lys Gly Phe  
 260 265 270  
 Gly Leu His Glu Leu Leu Asn Ile His Asn Ser Ala Lys Val Val Asn  
 275 280 285  
 Val Lys Glu Pro Glu Ala Gly Met Trp Thr Val Lys Thr Ser Ser Ser  
 290 295 300  
 Gly Arg His Ser Val Arg Ile Thr Gly Leu Ser Thr Ile Asp Phe Arg  
 305 310 315 320  
 Ala Gly Phe Ser Arg Lys Pro Thr Leu Asp Phe Lys Lys Thr Val Ser  
 325 330 335  
 Arg Pro Val Gln Gly Ile Pro Thr Tyr Val Leu Leu Asn Thr Ser Gly  
 340 345 350  
 Ile Ser Thr Pro Ala Arg Ile Asp Leu Leu Glu Leu Leu Ser Ile Ser  
 355 360 365  
 Gly Ser Ser Leu Lys Thr Ile Pro Val Lys Tyr Tyr Pro His Arg Lys  
 370 375 380  
 Pro Tyr Gly Ile Trp Asn Ile Ser Asp Phe Val Pro Pro Asn Glu Ala  
 385 390 395 400  
 Phe Phe Leu Lys Val Thr Gly Tyr Asp Lys Asp Asp Tyr Leu Phe Gln  
 405 410 415  
 Arg Val Ser Ser Val Ser Phe Ser Ser Ile Val Pro Asp Ala Pro Lys  
 420 425 430  
 Val Thr Met Pro Glu Lys Thr Pro Gly Tyr Tyr Leu Gln Pro Gly Gln  
 435 440 445  
 Ile Pro Cys Ser Val Asp Ser Leu Leu Pro Phe Thr Leu Ser Phe Val  
 450 455 460  
 Arg Asn Gly Val Thr Leu Gly Val Asp Gln Tyr Leu Lys Glu Ser Ala  
 465 470 475 480  
 Ser Val Ser Leu Asp Ile Ala Lys Val Thr Leu Ser Asp Glu Gly Phe  
 485 490 495

Tyr Glu Cys Ile Ala Val Ser Ser Ala Gly Thr Gly Arg Ala Gln Thr  
 500 505 510  
 Phe Phe Asp Val Ser Glu Pro Pro Pro Val Ile Gln Val Pro Asn Asn  
 515 520 525  
 Val Thr Val Thr Pro Gly Glu Arg Ala Val Leu Thr Cys Leu Ile Ile  
 530 535 540  
 Ser Ala Val Asp Tyr Asn Leu Thr Trp Gln Arg Asn Asp Arg Asp Val  
 545 550 555 560  
 Arg Leu Ala Glu Pro Ala Arg Ile Arg Thr Leu Ala Asn Leu Ser Leu  
 565 570 575  
 Glu Leu Lys Ser Val Lys Phe Asn Asp Ala Gly Glu Tyr His Cys Met  
 580 585 590  
 Val Ser Ser Glu Gly Gly Ser Ser Ala Ala Ser Val Phe Leu Thr Val  
 595 600 605  
 Gln Glu Pro Pro Lys Val Thr Val Met Pro Lys Asn Gln Ser Phe Thr  
 610 615 620  
 Gly Gly Ser Glu Val Ser Ile Met Cys Ser Ala Thr Gly Tyr Pro Lys  
 625 630 635 640  
 Pro Lys Ile Ala Trp Thr Val Asn Asp Met Phe Ile Val Gly Ser His  
 645 650 655  
 Arg Tyr Arg Met Thr Ser Asp Gly Thr Leu Phe Ile Lys Asn Ala Ala  
 660 665 670  
 Pro Lys Asp Ala Gly Ile Tyr Gly Cys Leu Ala Ser Asn Ser Ala Gly  
 675 680 685  
 Thr Asp Lys Gln Asn Ser Thr Leu Arg Tyr Ile Glu Ala Pro Lys Leu  
 690 695 700  
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 705 710 715 720  
 Met Glu Cys Lys Thr Ser Gly Ile Pro Pro Pro Gln Val Lys Trp Phe  
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 Lys Gly Asp Leu Glu Leu Arg Pro Ser Thr Phe Leu Ile Ile Asp Pro  
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 Leu Leu Gly Leu Leu Lys Ile Gln Glu Thr Gln Asp Leu Asp Ala Gly  
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 Asp Tyr Thr Cys Val Ala Ile Asn Glu Ala Gly Arg Ala Thr Gly Lys  
 770 775 780  
 Ile Thr Leu Asp Val Gly Ser Pro Pro Val Phe Ile Gln Glu Pro Ala  
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Asp Val Ser Met Glu Ile Gly Ser Asn Val Thr Leu Pro Cys Tyr Val  
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 Gln Gly Tyr Pro Glu Pro Thr Ile Lys Trp Arg Arg Leu Asp Asn Met  
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 850 855 860  
 Tyr Ile Cys Glu Ala Glu Asn Gln Phe Gly Lys Ile Gln Ser Glu Thr  
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 Thr Asn Ile Ala Gly Asn Val Thr Gln Ala Val Lys Leu Asn Val His  
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 Val Pro Pro Lys Ile Gln Arg Gly Pro Lys His Leu Lys Val Gln Val  
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 Gly Gln Arg Val Asp Ile Pro Cys Asn Ala Gln Gly Thr Pro Leu Pro  
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 Thr Ile Lys Trp Leu His Asn Gly Arg Glu Leu Thr Gly Arg Glu Pro  
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 Gly Thr Thr Glu Arg Lys Tyr Asn Leu Lys Val His Val Pro Pro Val  
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 Ile Lys Asp Lys Glu Gln Val Ser Asn Val Ser Val Leu Leu Asn Gln  
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 Leu Thr Asn Leu Phe Cys Glu Val Glu Gly Thr Pro Ser Pro Ile Ile  
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 Met Trp Tyr Lys Asp Asn Val Gln Val Thr Glu Ser Ser Thr Ile Gln  
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151

Val Ala Thr Ser Val Ala Gly Glu Lys Glu Ile Lys Tyr Glu Val Asp  
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Val Leu Val Pro Pro Ala Ile Glu Gly Gly Asp Glu Thr Ser Tyr Phe  
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Ile Val Met Val Asn Asn Leu Leu Glu Leu Asp Cys His Val Thr Gly  
1745 1750 1755 1760

Ser Pro Pro Pro Thr Ile Met Trp Leu Lys Asp Gly Gln Leu Ile Asp  
1765 1770 1775

Glu Arg Asp Gly Phe Lys Ile Leu Leu Asn Gly Arg Lys Leu Val Ile  
1780 1785 1790

Ala Gln Ala Gln Val Ser Asn Thr Gly Leu Tyr Arg Cys Met Ala Ala  
1795 1800 1805

Asn Thr Ala Gly Asp His Lys Lys Glu Phe Glu Val Thr Val His Val  
1810 1815 1820

Pro Pro Thr Ile Lys Ser Ser Gly Leu Ser Glu Arg Val Val Val Lys  
1825 1830 1835 1840

Tyr Lys Pro Val Ala Leu Gln Cys Ile Ala Asn Gly Ile Pro Asn Pro  
1845 1850 1855

Ser Ile Thr Trp Leu Lys Asp Asp Gln Pro Val Asn Thr Ala Gln Gly  
1860 1865 1870

Asn Leu Lys Ile Gln Ser Ser Gly Arg Val Leu Gln Ile Ala Lys Thr  
1875 1880 1885

Leu Leu Glu Asp Ala Gly Arg Tyr Thr Cys Val Ala Thr Asn Ala Ala  
1890 1895 1900

Gly Glu Thr Gln Gln His Ile Gln Leu His Val His Glu Pro Pro Ser  
1905 1910 1915 1920

Leu Glu Asp Ala Gly Lys Met Leu Asn Glu Thr Val Leu Val Ser Asn  
1925 1930 1935

Pro Val Gln Leu Glu Cys Lys Ala Ala Gly Asn Pro Val Pro Val Ile  
1940 1945 1950

Thr Trp Tyr Lys Asp Asn Cys Leu Leu Ser Gly Ser Thr Ser Met Thr  
1955 1960 1965

Phe Leu Asn Arg Gly Gln Ile Ile Asp Ile Glu Ser Ala Gln Ile Ser  
1970 1975 1980

Asp Ala Gly Ile Tyr Lys Cys Val Ala Ile Asn Ser Ala Gly Ala Thr  
1985 1990 1995 2000

Glu Leu Phe Tyr Ser Leu Gln Val His Val Ala Pro Ser Ile Ser Gly  
2005 2010 2015





Pro Pro Pro Thr Val Thr Trp Met Lys Asp Gly His Pro Leu Ile Lys  
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2500 2505 2510

Thr Trp His Lys Asp Gly Gln Pro Leu Gln Glu Asp Glu Ala His His  
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Ile Ile Ser Gly Gly Arg Phe Leu Gln Ile Thr Asn Val Gln Val Pro  
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His Thr Gly Arg Tyr Thr Cys Leu Ala Ser Ser Pro Ala Gly His Lys  
2545 2550 2555 2560

Ser Arg Ser Phe Ser Leu Asn Val Phe Val Ser Pro Thr Ile Ala Gly  
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Val Gly Ser Asp Gly Asn Pro Glu Asp Val Thr Val Ile Leu Asn Ser  
2580 2585 2590

Pro Thr Ser Leu Val Cys Glu Ala Tyr Ser Tyr Pro Pro Ala Thr Ile  
2595 2600 2605

Thr Trp Phe Lys Asp Gly Thr Pro Leu Glu Ser Asn Arg Asn Ile Arg  
2610 2615 2620

155



Leu Gln Ile Leu Asn Thr Gln Ile Thr Asp Ile Gly Arg Tyr Val Cys  
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Val Ala Glu Asn Thr Ala Gly Ser Ala Lys Lys Tyr Phe Asn Leu Asn  
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Val His Val Pro Pro Ser Val Ile Gly Pro Lys Ser Glu Asn Leu Thr  
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Val Val Val Asn Asn Phe Ile Ser Leu Thr Cys Glu Val Ser Gly Phe  
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Pro Pro Pro Asp Leu Ser Trp Leu Lys Asn Xaa Gln Pro Ile Lys Leu  
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Asn Thr Asn Thr Leu Ile Val Pro Gly Gly Arg Thr Leu Gln Ile Ile  
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Arg Ala Lys Val Ser Asp Gly Gly Glu Tyr Thr Cys Ile Ala Ile Asn  
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Xaa Ala Gly Glu Ser Lys Lys Lys Phe Ser Leu Thr Val Tyr Val Pro  
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Pro Ser Ile Lys Asp His Asp Ser Glu Ser Leu Ser Val Val Asn Val  
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Pro Pro Val Ile Thr Trp Tyr Lys Asn Gly Arg Met Ile Thr Glu Ser  
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Thr His Val Glu Ile Leu Ala Asp Gly Gln Met Leu His Ile Lys Lys  
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Ala Gly Arg Asp Asp Lys Asn Phe His Leu Asn Val Tyr Val Pro Pro  
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 3155 3160 3165

Pro Val Thr Leu Thr Cys Asp Ala Thr Gly Ile Pro Pro Pro Thr Ile  
 3170 3175 3180

Ala Trp Leu Lys Asn Tyr Lys Arg Ile Glu Asn Ser Asp Ser Leu Glu  
 3185 3190 3195 3200

Val Arg Ile Leu Ser Gly Gly Ser Lys Leu Gln Ile Ala Arg Ser Gln  
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His Ser Asp Ser Gly Asn Tyr Thr Cys Ile Ala Ser Asn Met Glu Gly  
 3220 3225 3230

Lys Ala Gln Lys Tyr Tyr Phe Leu Ser Ile Gln Val Pro Pro Ser Val  
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Val Glu Leu Val Cys Asn Ala Asn Gly Ile Pro Thr Pro Leu Ile Gln  
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Trp Leu Lys Asp Gly Lys Pro Ile Ala Ser Gly Glu Thr Glu Arg Ile  
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Arg Val Ser Ala Asn Gly Ser Thr Leu Asn Ile Tyr Gly Ala Leu Thr  
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Ser Asp Thr Gly Lys Tyr Thr Cys Val Ala Thr Asn Pro Ala Gly Glu  
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Glu Asp Arg Ile Phe Asn Leu Asn Val Tyr Val Thr Pro Thr Ile Arg  
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Gly Asn Lys Asp Glu Ala Glu Lys Leu Met Thr Tyr Val Asp Thr Ser  
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Ile Asn Ile Glu Cys Arg Xaa Thr Gly Thr Pro Pro Pro Gln Ile Asn  
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Trp Leu Lys Asn Gly Leu Pro Leu Pro Leu Ser Ser His Ile Arg Leu  
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Lys His Tyr Asn Leu Gln Val Phe Ala Pro Pro Asn Met Asp Asn Ser  
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Met Gly Thr Glu Glu Ile Thr Val Leu Lys Gly Ser Ser Thr Ser Met  
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Ala Cys Ile Thr Asp Gly Thr Pro Ala Pro Ser Met Ala Trp Leu Arg  
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Asp Gly Gln Pro Leu Gly Leu Asp Ala His Leu Thr Val Ser Thr His  
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Lys Ser Thr Val Leu Glu Cys Ile Ala Glu Gly Val Pro Thr Pro Arg  
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Ile Thr Trp Arg Lys Asp Gly Ala Val Leu Ala Gly Asn His Ala Arg  
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Tyr Ser Ile Leu Glu Asn Gly Phe Leu His Ile Gln Ser Ala His Val  
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Thr Asp Thr Gly Arg Tyr Leu Cys Met Ala Thr Asn Ala Ala Gly Thr  
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 3985 3990 3995 4000  
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 Ser Pro Phe Ile Thr Trp Gln Lys Glu Gly Ile Asn Val Asn Thr Ser  
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Ala Tyr Pro Tyr  
5635

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Leu Glu Gly Glu Ser Val Thr Leu Thr Cys Pro Ala Ser Gly Asp Pro  
1 5 10 15  
Val Pro Asn Ile Thr Trp Leu Lys Asp Gly Lys Pro Leu Pro Glu Ser  
20 25 30  
Arg Val Val Ala Ser Gly Ser Thr Leu Thr Ile Lys Asn Val Ser Leu  
35 40 45  
Glu Asp Ser Gly Leu Tyr Thr Cys Val Ala Arg Asn Ser Val Gly  
50 55 60

<210> 95  
<211> 81  
<212> PRT  
<213> Homo sapiens

<400> 95  
Val Lys Glu Gly Glu Ser Val Thr Leu Ser Cys Glu Ala Ser Gly Asn  
1 5 10 15  
Pro Pro Pro Thr Val Thr Trp Tyr Lys Gln Gly Gly Lys Leu Leu Ala  
20 25 30  
Glu Ser Gly Arg Phe Ser Val Ser Arg Ser Gly Gly Asn Ser Thr Leu  
35 40 45  
Thr Ile Ser Asn Val Thr Pro Glu Asp Ser Gly Thr Tyr Thr Cys Ala  
50 55 60  
Ala Thr Asn Ser Ser Gly Ser Ala Ser Ser Gly Thr Thr Leu Thr Val  
65 70 75 80  
Leu

<210> 96  
<211> 629  
<212> PRT  
<213> Mus musculus

<400> 96  
Gln Ala Ala Arg Gly Arg Thr Arg Lys Gly Lys Tyr Cys Leu Gln Leu  
1 5 10 15  
Ser Pro Phe Ile Leu Trp Phe Leu Arg Leu Asp Asn Leu Ile Phe His  
20 25 30  
Pro Glu Lys Ala Glu Val Leu Ala Val Leu Asp Trp Glu Leu Ser Thr  
35 40 45

Leu Gly Asp Pro Phe Ala Asp Val Ala Tyr Ser Cys Leu Ala Tyr Tyr  
 50 55 60  
 Leu Pro Ser Ser Phe Pro Ile Leu Arg Gly Phe Arg Asp Gln Asp Val  
 65 70 75 80  
 Thr Lys Leu Gly Ile Pro Thr Val Glu Glu Tyr Phe Arg Met Tyr Cys  
 85 90 95  
 Leu Asn Met Gly Ile Pro Pro Ile Asp Asn Trp Asn Phe Tyr Met Ala  
 100 105 110  
 Phe Ser Phe Phe Arg Val Ala Ala Ile Leu Gln Gly Val Tyr Lys Arg  
 115 120 125  
 Ser Leu Thr Gly Gln Ala Ser Ser Ala Thr Ala Gln Gln Ser Gly Lys  
 130 135 140  
 Leu Thr Glu Ser Met Ala Glu Leu Ala Trp Asp Phe Ala Thr Lys Glu  
 145 150 155 160  
 Gly Phe Arg Val Phe Lys Glu Met Pro Ala Thr Lys Thr Leu Ser Arg  
 165 170 175  
 Ser Tyr His Ala Trp Ala Gly Pro Arg Ser Pro Arg Thr Pro Lys Gly  
 180 185 190  
 Val Arg Gly His Ser Thr Val Ala Ala Ala Ser Pro Ser His Glu Ala  
 195 200 205  
 Lys Gly Gly Leu Val Ile Ser Pro Glu Gly Leu Ser Pro Ala Val Arg  
 210 215 220  
 Lys Leu Tyr Glu Gln Leu Val Gln Phe Ile Glu Gln Lys Val Tyr Pro  
 225 230 235 240  
 Leu Glu Pro Glu Leu Gln Arg His Gln Ala Ser Ala Asp Arg Trp Ser  
 245 250 255  
 Pro Ser Pro Leu Ile Glu Asp Leu Lys Glu Lys Ala Lys Ala Glu Gly  
 260 265 270  
 Leu Trp Asn Leu Phe Leu Pro Leu Glu Thr Asp Pro Glu Lys Lys Tyr  
 275 280 285  
 Gly Ala Gly Leu Thr Asn Val Glu Tyr Ala His Leu Cys Glu Val Met  
 290 295 300  
 Gly Met Ser Leu Tyr Ala Ser Glu Ile Phe Asn Cys Ser Ala Pro Asp  
 305 310 315 320  
 Thr Gly Asn Met Glu Ile Leu Val Arg Tyr Gly Thr Glu Glu Gln Lys  
 325 330 335  
 Ala Arg Trp Leu Val Pro Leu Leu Glu Gly Arg Ile Arg Ser Cys Phe  
 340 345 350



<212> PRT

<213> Mus musculus

<400> 97

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Met Glu Gln Arg Val Tyr Pro Ala Glu Pro Glu Leu Gln Ser His Gln
 1          5          10          15

Ala Ser Ala Ala Arg Trp Ser Pro Ser Pro Leu Ile Glu Asp Leu Lys
          20          25          30

Glu Lys Ala Lys Ala Glu Gly Leu Trp Asn Leu Phe Leu Pro Leu Glu
          35          40          45

Ala Asp Pro Glu Lys Lys Tyr Gly Ala Gly Leu Thr Asn Val Glu Tyr
          50          55          60

Ala His Leu Cys Glu Leu Met Gly Thr Ser Leu Tyr Ala Pro Glu Val
          65          70          75          80

Cys Asn Cys Ser Ala Pro Asp Thr Gly Asn Met Glu Leu Leu Val Arg
          85          90          95

Tyr Gly Thr Glu Ala Gln Lys Ala Arg Trp Leu Ile Pro Leu Leu Glu
          100          105          110

Gly Lys Ala Arg Ser Cys Phe Ala Met Thr Glu Pro Gln Val Ala Ser
          115          120          125

Ser Asp Ala Thr Asn Ile Glu Ala Ser Ile Arg Glu Glu Asp Ser Phe
          130          135          140

Tyr Val Ile Asn Gly His Lys Trp Trp Ile Thr Gly Ile Leu Asp Pro
          145          150          155          160

Arg Cys Gln Leu Cys Val Phe Met Gly Lys Thr Asp Pro His Ala Pro
          165          170          175

Arg His Arg Gln Gln Ser Val Leu Leu Val Pro Met Asp Thr Pro Gly
          180          185          190

Ile Lys Ile Ile Arg Pro Leu Thr Val Tyr Gly Leu Glu Asp Ala Pro
          195          200          205

Gly Gly His Gly Glu Val Arg Phe Glu His Val Arg Val Pro Lys Glu
          210          215          220

Asn Met Val Leu Gly Pro Gly Arg Gly Phe Glu Ile Ala Gln Gly Arg
          225          230          235          240

Leu Gly Pro Gly Arg Ile His His Cys Met Arg Leu Ile Gly Phe Ser
          245          250          255

Glu Arg Ala Leu Ala Leu Met Lys Ala Arg Val Lys Ser Arg Leu Ala
          260          265          270

Phe Gly Lys Pro Leu Val Glu Gln Gly Thr Val Leu Ala Asp Ile Ala
          275          280          285

```



Gln Ser Arg Val Glu Ile Glu Gln Ala Arg Leu Leu Val Leu Arg Ala  
 290 295 300  
 Ala His Leu Met Asp Leu Ala Gly Asn Lys Ala Ala Ala Leu Asp Ile  
 305 310 315 320  
 Ala Met Ile Lys Met Val Ala Pro Ser Met Ala Ser Arg Val Ile Asp  
 325 330 335  
 Arg Ala Ile Gln Lys Thr Ser Leu Gln Glu Ala Trp Ser Leu Phe Gln  
 340 345 350  
 Ala Arg Arg Arg Gly Phe Ala Glu Gly Gln Gly Gly Ser Gly Thr Glu  
 355 360 365  
 Ser Gly Lys Leu Val Phe Arg Leu Ser Val Pro Gly Trp Ala Gly Thr  
 370 375 380  
 Val Thr Ser Leu Gln Pro Phe Ser Pro Ser Leu Ser Ala Cys Gly Asn  
 385 390 395 400  
 Leu Asp Thr Phe Trp Glu Ala Ser Gln Gly Cys Gly Thr Cys Leu Leu  
 405 410 415  
 Trp Gln Leu Gln Gly Ser Cys Leu Ala Ser Leu Val Ser Arg Gly Ala  
 420 425 430  
 Ala Thr Ala Gly Gly Gly Leu Glu Thr Gln Asp Leu Gly Ala Trp Glu  
 435 440 445  
 Asn Gly Met Gln Pro Thr Leu  
 450 455

<210> 98  
 <211> 415  
 <212> PRT  
 <213> *Deinococcus radiodurans*

<400> 98  
 Met Thr Met Phe Asp Thr Thr Pro Arg Ala Gln Asp Leu Arg Glu Arg  
 1 5 10 15  
 Leu Leu Arg Phe Met Asp Thr Tyr Ile Tyr Pro Asn Glu Ala Glu Phe  
 20 25 30  
 His Arg Gln Val Glu Ser Gly Glu Arg Trp Ala Pro Val Glu Leu Ile  
 35 40 45  
 Glu Glu Leu Lys Pro Lys Ala Arg Ala Glu Gly Leu Trp Asn Leu Phe  
 50 55 60  
 Leu Pro Pro Ala Ser Asp Pro Glu Gly Lys Phe Gly Ala Gly Leu Thr  
 65 70 75 80  
 Asn Leu Glu Tyr Ala Gly Leu Cys Glu Ile Met Gly Arg Val Trp Trp

170

385

390

395

400

Glu Leu Arg Arg Gln Gly Val Asp Leu Arg Ala Leu Ser Lys Arg  
 405 410 415

&lt;210&gt; 99

&lt;211&gt; 409

&lt;212&gt; PRT

<213> *Pseudomonas aeruginosa*

&lt;400&gt; 99

Met Asp Phe Ala Tyr Ser Pro Lys Val Gln Glu Leu Arg Glu Arg Val  
 1 5 10 15

Ser Ala Phe Met Glu Ala His Val Tyr Pro Ala Glu Ala Val Phe Glu  
 20 25 30

Arg Gln Val Ala Glu Gly Asp Arg Trp Gln Pro Thr Ala Ile Met Glu  
 35 40 45

Glu Leu Lys Ala Lys Ala Lys Ala Glu Gly Leu Trp Asn Leu Phe Leu  
 50 55 60

Pro Glu Ser Glu Tyr Gly Ala Gly Leu Ala Asn His Glu Tyr Ala Pro  
 65 70 75 80

Leu Ala Glu Ile Met Gly Arg Ser Leu Ile Gly Pro Glu Pro Phe Asn  
 85 90 95

Cys Ala Ala Pro Asp Thr Gly Asn Met Glu Val Leu Val Arg Tyr Gly  
 100 105 110

Ser Glu Glu Gln Lys Arg Thr Trp Leu Glu Pro Leu Leu Ser Gly Glu  
 115 120 125

Ile Arg Ser Ala Phe Ala Met Thr Glu Pro Gly Val Ala Ser Ser Asp  
 130 135 140

Ala Thr Asn Met Glu Ala Arg Ala Glu Arg Gln Gly Asp Asp Trp Val  
 145 150 155 160

Ile Asn Gly Arg Lys Trp Trp Thr Ser Gly Ala Cys Asp Pro Arg Cys  
 165 170 175

Lys Ile Leu Ile Phe Met Gly Leu Thr Asn Pro Asp Ala Pro Arg His  
 180 185 190

Gln Gln His Ser Met Ile Leu Val Pro Val Asp Thr Pro Gly Val Lys  
 195 200 205

Ile Leu Arg Pro Leu Pro Val Phe Gly Tyr Asp Asp Ala Pro His Gly  
 210 215 220

His Ala Glu Val Leu Phe Glu Asn Val Arg Val Pro Tyr Glu Asn Val  
 225 230 235 240

**SECRET**

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<210> 100
<211> 423
<212> PRT
<213> Arabidopsis thaliana
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<400> 100
Met Asp Ala Val Gln Arg Asp Val Ser Pro Ser Tyr Glu Ser Leu Val
  1                      5                      10                      15

Asp Gly Ser Gly Arg Phe Ile Pro Asn Arg Lys Val Leu Glu Leu Arg
                20                      25                      30

Gln Lys Leu Ile Lys Phe Met Glu Thr His Ile Tyr Pro Met Glu Asn
    35                      40                      45

Glu Phe Ser Lys Leu Ala Gln Ser Asp Met Arg Trp Thr Val His Pro
    50                      55                      60

Gln Glu Glu Lys Leu Lys Glu Met Ala Lys Arg Glu Gly Leu Trp Asn
  65                      70                      75                      80

Leu Phe Val Pro Ser Phe Asp Gln Leu Phe Gly Glu Gly Leu Thr Asn
                85                      90                      95

```

Leu Glu Tyr Gly Tyr Leu Cys Glu Ile Met Gly Arg Ser Val Trp Ala  
 100 105 110  
 Pro Gln Val Phe Asn Cys Gly Ala Pro Asp Thr Gly Asn Met Glu Val  
 115 120 125  
 Ile Leu Arg Tyr Gly Asn Lys Glu Gln Ile Ser Glu Trp Leu Ile Pro  
 130 135 140  
 Leu Leu Glu Gly Arg Ile Arg Ser Gly Phe Ala Met Thr Glu Pro Gln  
 145 150 155 160  
 Val Ala Ser Ser Asp Ala Thr Asn Ile Glu Cys Ser Ile Arg Arg Gln  
 165 170 175  
 Gly Asp Ser Tyr Val Ile Asn Gly Thr Lys Trp Trp Thr Ser Gly Ala  
 180 185 190  
 Met Asp Pro Arg Cys Arg Val Leu Ile Leu Met Gly Lys Thr Asp Phe  
 195 200 205  
 Asn Ala Pro Lys His Lys Gln Gln Ser Met Ile Leu Val Asp Met Arg  
 210 215 220  
 Thr Pro Gly Ile Ser Val Lys Arg Pro Leu Thr Val Phe Gly Phe Asp  
 225 230 235 240  
 Asp Ala Pro His Gly His Ala Glu Ile Ser Phe Glu Asn Val Val Val  
 245 250 255  
 Pro Ala Lys Asn Ile Leu Leu Gly Glu Gly Arg Gly Phe Glu Ile Ala  
 260 265 270  
 Gln Gly Arg Leu Gly Pro Gly Arg Leu His His Cys Met Arg Leu Ile  
 275 280 285  
 Gly Ala Ala Glu Arg Gly Met Glu Leu Met Ala Gln Arg Ala Leu Ser  
 290 295 300  
 Arg Lys Thr Phe Gly Lys Phe Ile Ala Gln His Gly Ser Phe Val Ser  
 305 310 315 320  
 Asp Leu Ala Lys Leu Arg Val Glu Leu Glu Gly Thr Arg Leu Leu Val  
 325 330 335  
 Leu Glu Ala Ala Asp His Leu Asp Lys Phe Gly Asn Lys Lys Ala Arg  
 340 345 350  
 Gly Ile Leu Ala Met Ala Lys Val Ala Ala Pro Asn Met Ala Leu Lys  
 355 360 365  
 Val Leu Asp Thr Ala Ile Gln Val His Gly Ala Ala Gly Val Ser Ser  
 370 375 380  
 Asp Thr Val Leu Ala His Leu Trp Ala Thr Ala Arg Thr Leu Arg Ile  
 385 390 395 400

Ala Asp Gly Pro Asp Glu Val His Leu Gly Thr Ile Gly Lys Leu Glu  
405 410 415

Leu Gln Arg Ala Ser Lys Leu  
420

<210> 101  
<211> 147  
<212> PRT  
<213> Homo sapiens

<400> 101  
Gly Lys Gly Phe Lys Tyr Ala Met Lys Glu Leu Asp Met Glu Arg Leu  
1 5 10 15

Val Ile Ala Ala Gln Ala Leu Gly Ile Ala Gln Gly Ala Leu Asp Glu  
20 25 30

Ala Ile Pro Tyr Ala Lys Gln Arg Lys Gln Phe Gly Lys Pro Leu Ala  
35 40 45

His Phe Gln Leu Ile Gln Phe Lys Leu Ala Asp Met Ala Thr Lys Leu  
50 55 60

Glu Ala Ala Arg Leu Leu Leu Tyr Arg Ala Ala Trp Leu Ala Asp Arg  
65 70 75 80

Gly Arg Pro Thr Ser Lys Glu Ala Ala Met Ala Lys Leu Phe Ala Ser  
85 90 95

Glu Ala Ala Met Gln Val Ala Asp Asp Ala Val Gln Ile Leu Gly Gly  
100 105 110

Val Gly Tyr Thr Asn Asp Tyr Pro Val Glu Arg Phe Tyr Arg Asp Ala  
115 120 125

Lys Ile Thr Gln Ile Tyr Glu Gly Thr Ser Glu Ile Gln Arg Leu Val  
130 135 140

Ile Ala Arg  
145

<210> 102  
<211> 101  
<212> PRT  
<213> Homo sapiens

<400> 102  
Ala Leu Thr Glu Pro Gly Ala Gly Ser Asp Val Gly Ser Ile Lys Thr  
1 5 10 15

Thr Ala Glu Arg Lys Gly Asp Asp Tyr Ile Leu Asn Gly Ser Lys Met  
20 25 30

Trp Ile Thr Asn Gly Gly Gln Ala Asp Trp Tyr Ile Val Leu Ala Val  
 35 40 45  
 Thr Asp Pro Ala Pro Gly Lys Lys Gly Ile Thr Ala Phe Leu Val Glu  
 50 55 60  
 Lys Asp Thr Pro Gly Phe His Ile Gly Lys Lys Glu Asp Lys Leu Gly  
 65 70 75 80  
 Leu Arg Ser Ser Asp Thr Cys Glu Leu Ile Phe Glu Asp Val Arg Val  
 85 90 95  
 Pro Glu Ser Asn Ile  
 100

<210> 103  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 103  
 gaggtctctt ccagtaacat ca 22

<210> 104  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 104  
 actctccttg tcctctgagg cgctct 26

<210> 105  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 105  
 gcagtttggt tggttggttt ac 22

<210> 106  
 <211> 22

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 106

catagccctg tctcaagtct tg

22

<210> 107

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 107

ttccatctct tcagcaaata ctctca

26

<210> 108

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 108

actcttccga catcacaaga aa

22

<210> 109

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 109

tgagaatcag atccatgaag ct

22

<210> 110

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer



## Sequence

<400> 110  
ccattagctg ctctgaacac ctttgg 26

<210> 111  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 111  
gtcgtgacc accacatata gt 22

<210> 112  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 112  
ccacttctaa agccacattg tc 22

<210> 113  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 113  
tccacatctg gtcttgattt aatgtctga 29

<210> 114  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 114  
cttctctttg tggggagatt tc 22

<210> 115  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 115  
 aaagaaggat accagggtga tg 22

<210> 116  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 116  
 atgattgaac cttcagggtcc aattca 26

<210> 117  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 117  
 ggtaccattt cccttttgga ca 22

<210> 118  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 118  
 ggaggctgaa ctggagaaaa 20

<210> 119  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 119  
 ccaccctgct tttgcaggaa aagtat 26

<210> 120  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 120  
 cttcaaggct ttgcaccata 20

<210> 121  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 121  
 tggagcagct cagaaaacat gt 22

<210> 122  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 122  
 agaatcggtg gtcctgtcct tcccc 25

<210> 123  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 Sequence

<400> 123  
catagctgtc ttccagggtg aac

23

<210> 124  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 124  
ggaggactct aatggttcca tt

22

<210> 125  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 125  
accttggtgc togccctgac agt

23

<210> 126  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 126  
cttcacgtca gctccagaat

20

<210> 127  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 127  
ggaggactct aatggttcca tt

22

<210> 128



<223> Description of Artificial Sequence: PCR Primer  
Sequence

<400> 132

gatgtgcata ttccacattg gt

22